Convection Ovens

BX Classic

Models BX4 / FG 189C, BX4-6040 / FG 158C, BX10 / FG 180C

Operator's Manual

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If you accept the machine from the shipping company, you are, in effect, saying that the machine is in good condition, and you must pay for the machine. Belshaw cannot pay for shipping damage, because the freight company has accepted the machine from Belshaw in good condition, and is responsible for its safe delivery. For your protection, inspect the machine to see that no parts are bent, scratched, or otherwise damaged. If any damage has occurred in shipping, file a freight claim with the shipping company immediately.

WARNING

Keep this manual available at all times for use.

EQUIPMENT RECORD

Please provide the information below when you correspond with us about your machine.

Purchased by _____

Installed by _____

Date of Installation _____

Model number _____

Serial number _____

071708

MN-1876EN

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Preface

The Belshaw BX convection oven is a computerized, compact, electric oven with a capacity for either four or 10 trays. Each tray is 26” x 18”.

The convection oven is made of stainless steel and is fitted with a removable tray rack, allowing easy cleaning of its internal surfaces.

The 4-tray oven is designed to be stackable without separate support, allowing the system to grow with your business without taking up a large area.

The 10-tray oven is equipped with an integral, energy efficient steam system. A double glazed door also helps to increase energy efficiency, and the oven base is supplied with locking castors.

The high-speed fan and ring element provides efficient air circulation, helping produce a range of high-quality products.

To help ensure safe and efficient operation of the oven, the operator must work safely at all times, read this manual, and follow its instructions and warnings. A thorough understanding of how to install, maintain, and safely operate the convection oven will help prevent production delays and injuries.

To use the convection oven safely, heed the following warnings and all other warnings that appear in this manual.

- Use the oven only for baking bread, confectionery, and savory products. Do not use for any other items without consulting Belshaw.
- All repairs and maintenance of electrical units must be done by authorized electricians.
- Electrical access panels must not be opened unless the main supply to the oven is isolated.
- All connections must be made in accordance with the regulations of the country where the oven is installed.
- Do not touch the oven, its windows, or immediate surroundings during or shortly after use, as these surfaces may be hot.
- Use only Belshaw parts in this oven.
- Do not change the construction of this oven.
- The owner of the oven is legally obligated to instruct staff using the oven in its operation and in these safety regulations. The instructions must stay in the oven’s working area.
- This oven uses a steam generator. Hard water must be properly treated before use.

Installation 1

Unpacking the oven

1. Move the crate containing the oven to the workstation.
2. Remove the machine from the shipping crate, being careful not to lose, loosen or damage any parts.
3. Remove all packing materials from the machine.
4. Inspect the machine to see that no parts have been damaged during shipping. If any damage has occurred, file a freight claim with the shipping company immediately.

IMPORTANT
Keep this manual available for future reference.

Dimensions and Specifications

	2618 4 tray oven	**2618 10 tray oven**
Height	21 inches	74 inches
Depth, door closed, including handle	44 inches	53.5 inches
Width	33.5 inches	33.5 inches
Operational clearance*	2” back and sides, 10” top	2” back and sides, 10” top
Total power	7.25 kW	17 kW
Electric	208 V, 3-phase + N + E, 60Hz, fused at 35A	208 V, 3-phase +N + E, 60Hz, fused at 58A
Supply cable	6 feet of cable provided	6 feet of cable provided
Loading	7 kW concentric ring element	16 kW (2 - 8 kW concentric ring elements)
Fan drive	Direct to motor	Direct to motor
Tray size	26” x 18”	26” x 18”
Tray capacity	4	5, 9, or 10
Damper	Butterfly type	Butterfly type
Noise level	Less than 85 dB	Less than 85 dB

* Operational clearance is the amount of space required at the back, sides, and top of the oven to allow adequate air circulation.

Water Supply

- The BX oven is fitted with a steam generator. In areas with hard water, the water supply to the oven must be treated with an appropriate protecting water treatment device. It is the sole responsibility of the customer to provide and maintain an appropriate water treatment system.
- For stacked ovens, the water supply should be shut off by closing the shut-off valves. (See Figure 1-1)
- For non-stacked ovens, the water supply should be shut off at the nearest shut-off point.

The BX oven needs the following for the water supply:

- ¾" BSP female thread on the oven.
- 3 foot-long hose with ¾" B.S.P. female fittings at both ends (included)
- Inline backflow valve (customer must provide and fit)
- 15-60 p.s.i. water pressure

Installation

The BX oven should be connected to a local means of isolation.

- To stop the oven in an emergency, switch off at the wall isolator.

NOTE

When stacking two BX4 ovens, you MUST install the Stacking Kit (Part Number M159-00-00100) between the ovens. Please refer to Figure 5-1 in Section 5.

Initial Cleaning

Carefully wipe the interior of the oven and all accessories with a clean cloth soaked in warm soapy water and allow the oven to dry completely.

IMPORTANT

When cleaning the inside of the 4-tray oven, be careful not to damage the control probe protruding from the upper corner of the chamber's rear wall.

WARNING

Do not allow water to enter the control panel or rear access panel.

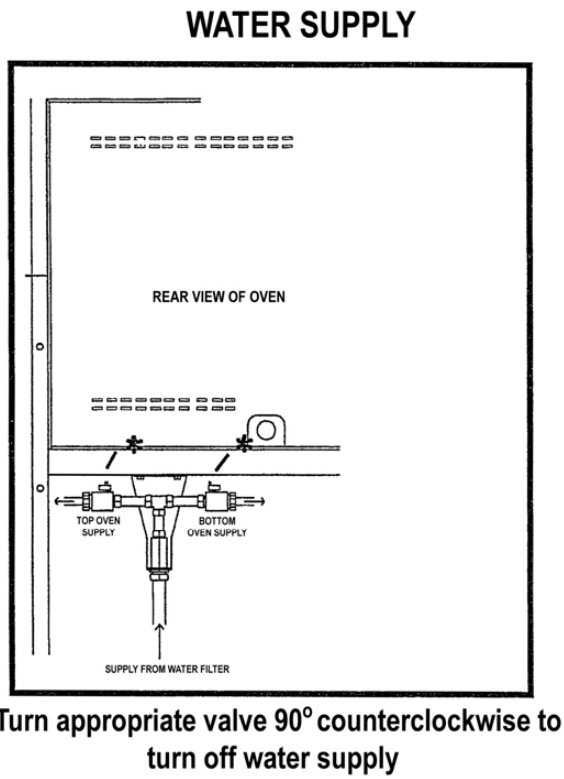
WATER SUPPLY
REAR VIEW OF OVEN
TOP OVEN SUPPLY
BOTTOM OVEN SUPPLY
SUPPLY FROM WATER FILTER
*Turn appropriate valve 90° counterclockwise to turn off water supply

Figure 1-1. Turning off the water supply.

Programming the control panel

Pre-set values for bake temperatures, bake time, steam and damper may be modified at any time. Numbers in parentheses reference numbers in Figure 1-2.

To change the program values:

1. Press the up and down arrow keys (2) to select the program you wish to change.
2. Press the key next to the value you wish to change (i.e. temperature or time) (6-9). A selection indicator will flash in the right hand side of the selected window. Use the up/down arrow keys to modify the value.
3. The program can be run using these values as a temporary setting, or the setting changes can be saved. If the program changes are not saved, the settings will revert back to the original settings the next time the program is selected.
4. To save the changes, press and hold the P key (5). All displayed values will flash and the controller will beep to indicate the program has been saved. After the controller has beeped, release the P key.

Note: Programs cannot be saved during a bake cycle.

Function of Setting

Key 6: Vent Time. This is the number of minutes at which the vent will wait to open at the end of the bake cycle. Time can be set from 0-10 minutes.

Note: This time cannot exceed the bake time.

Key 7: Steam Time. This is the amount of time the steam will inject at the beginning of the bake. Time can be set from 0-20 seconds.

Note: The oven must be above 257°F (125°C) before the steam will inject.

Key 8: Bake Time. This is the amount of time the product will bake. Time can be set from 1-99 minutes.

Key 9: Temperature. This is the temperature at which the oven will bake the product. Temperature can be set from 122°F to 482°F (50°C to 250°C).

Fan Cycle Setting

1. Press the P key (5) and the Stop key (4) at the same time, and hold for five seconds. The display will show “FAN 00” if the fan is currently disabled or “FAN 01” if the fan is currently enabled.
2. Use the up/down arrow keys to select the fan setting.

Note: The default setting for the fan is "fan cycling disabled."

Note: In a 4-tray oven, the fan is only functional in an oven wired for 3-phase. If activated in a 1-phase oven, the fan will automatically stop.

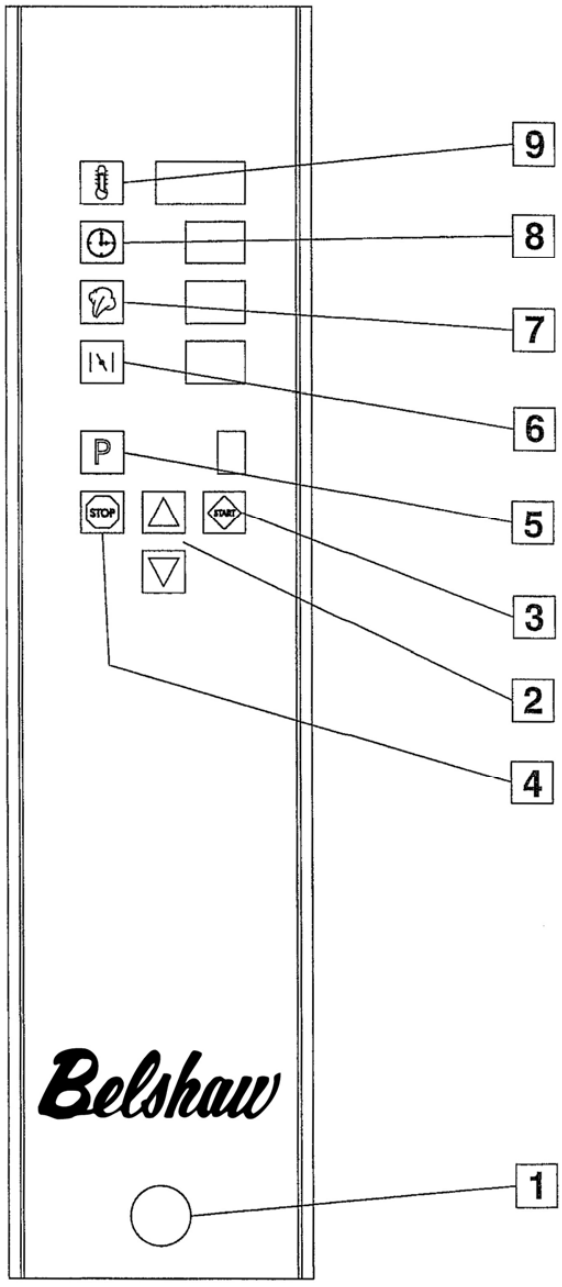

Figure 1-2. 'Classic' oven control panel.

Operation 2

Operating conditions

For the most efficient operation, the following instructions must be followed. Failure to comply with these guidelines may affect the warranty.

- The ambient temperature around the oven must not exceed 115°F (40°C).
- The ventilation around the oven should be enough to ensure that there is no condensation on or around the oven from steam.
- It is the customer's responsibility to arrange for adequate ventilation and operational clearance at the back and sides of the oven to allow circulation of air.

Running Pre-set programs

1. Turn on the power by pressing the green power button and make sure the oven door is completely closed.
2. Select the desired program using the UP/DOWN arrow buttons.
3. Press the START button to preheat the oven, beginning the bake cycle. The oven will heat to the set temperature and the display will flash the actual temperature. When the set temperature is reached, the display will stop flashing and the oven is preheated.
4. Load the product and close the door.
5. Press START. The display will show the following information:
    - Actual temperature
    - Remaining bake time in minutes and, during the last minute, in seconds.
    - Steam time (if applicable) in seconds. If the actual temperature is less than the minimum steam temperature (257°F, 125°C), "--" will be displayed. This indicates that the steaming function is disabled.
    - Time in minutes the damper is open
    - Program number alternating with the spinning bake cycle indicator
6. Press STOP when bake oven alarm sounds or when the product is done. If additional baking time is required, do not press stop. To add time, select the bake time and increase it.
    - Note: Pressing the TIME button will automatically extend the bake time to the next whole minute. For example, if there is 1 min. 20 sec. Remaining on the clock, pressing the TIME button will extend the time to 2 minutes. This allows one to extend the bake time up to one minute with a single press of a button.

WARNING

Stand clear of the oven door when opening to avoid the hot steam and vapor. Hot steam or vapor may cause severe burns.

WARNING

Always preheat the oven to required temperature. Do not place product directly into a cold oven.

Cleaning and Maintenance 3

Daily Cleaning

1. Disconnect the oven from main power supply and allow to cool completely before cleaning.
2. Use only approved chloride-free cleaning fluid for daily cleaning.
3. Carefully clean the oven, being sure to not damage the control probe in the upper corner of the rear wall inside the chamber.
4. Do not let any liquid enter the control panel or rear access panel.
5. Dry completely.

Weekly Cleaning

1. Complete the daily cleaning.
2. Carefully clean off any burnt-on debris using an appropriate oven cleaner, following the manufacturer's instructions. **Do not allow the oven cleaner to get in the control panel.**
3. Scrub the cabinet wheels (if fitted) with a mild detergent and hot water, using a nylon cleaning brush.
4. Open the oven door and remove the internal racking from the sides of the oven by lifting and unlatching the racking. Wipe out the interior with a damp cloth.
5. Open the inner door glass by removing two screws shown in Figure 3-1. The glass is hinged to allow a more thorough cleaning (BX-4 only).

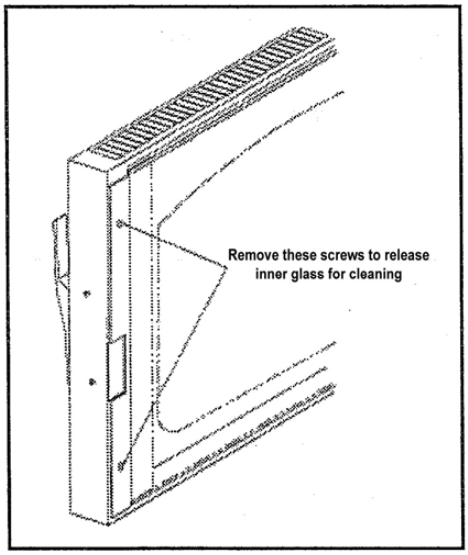

Figure 3-1. Removing the inner door glass (BX-4 only).

6. Clean the glass with a suitable glass cleaner.
7. Wipe down the oven and clean the racking with a damp cloth.
8. Reassemble all parts back in the oven after cleaning.

WARNING
In the 4-tray oven, do not damage the control probe protruding from the upper corner of the inside rear wall of the oven chamber.

WARNING
Make sure water does not enter the control panel or rear access panel.

WARNING
Do not remove the rear paneling inside the oven. This allows access to the fan assembly and could cause injury.

Maintenance

- Check for frayed or bare cables. The machine must not be used if there are frayed or bare cables.
- Follow cleaning instructions exactly.
- Check condition of the rubber door seal. Repair or replace if necessary.
- If the light bulb burns out, use the following instructions to replace it.
    a. Disconnect the oven from the main power supply and allow to cool.
    b. Remove the glass front from the lamp unit.
    c. Remove the bulb by unscrewing counterclockwise and replace with a new bulb.
    d. Refit the glass front.
    e. Reconnect the oven to the main power supply and test.
- If the steaming operation deteriorates, clean the pipe aperture with a pin to remove any build-up.

Lubrication

This machine does not require special lubrication.

TEMPERATURE PROBE
VIEW LOOKING INSIDE OVEN CHAMBER
(WITH RUNNERS REMOVED)
TEMPERATURE PROBE
IMPORTANT WARNING!
CARE MUST BE TAKEN WHEN CLEANING AROUND THE TEMPERATURE PROBE.
(IF ANY DAMAGE OCCURS TO THE TEMPERATURE PROBE
IT MUST BE REPLACED BEFORE ANY FURTHER COOKING OPERATIONS)
IF YOU HAVE ANY QUESTIONS - ASK
REV
SIG
DATE
REVISION
ECN NO.
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TITLE:
BX CLEANING INSTRUCTIONS
(SHOWING THERMOCOUPLE PROBE POSITION)
ELECTRICAL SPECIFICATIONS:-
DRAWN:
S.P.
ELECTRICALLY APPROVED BY:-
-
DATE:
21-2-98
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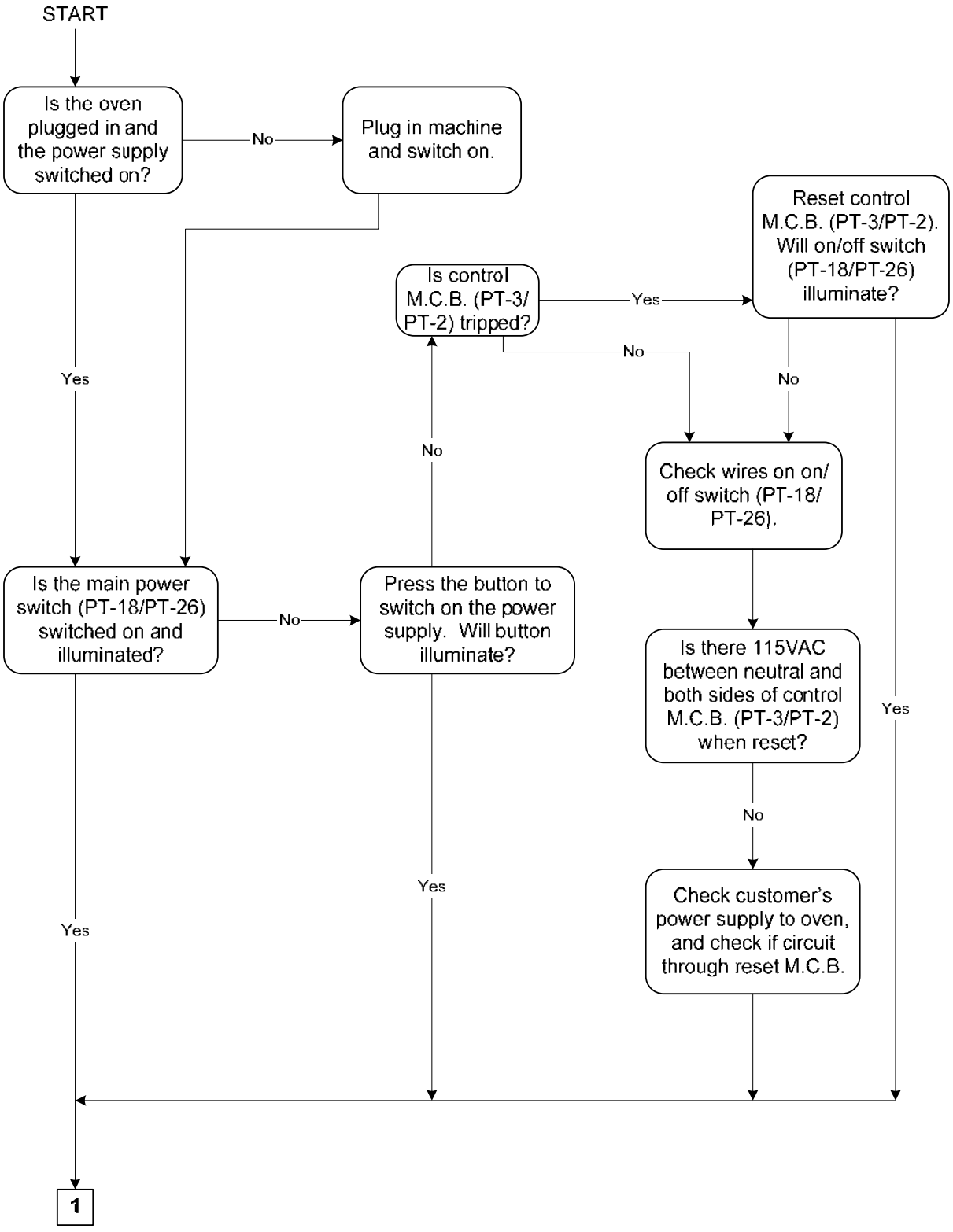
Troubleshooting 4

The following pages contain troubleshooting/ fault analysis charts for the Classic convection oven.

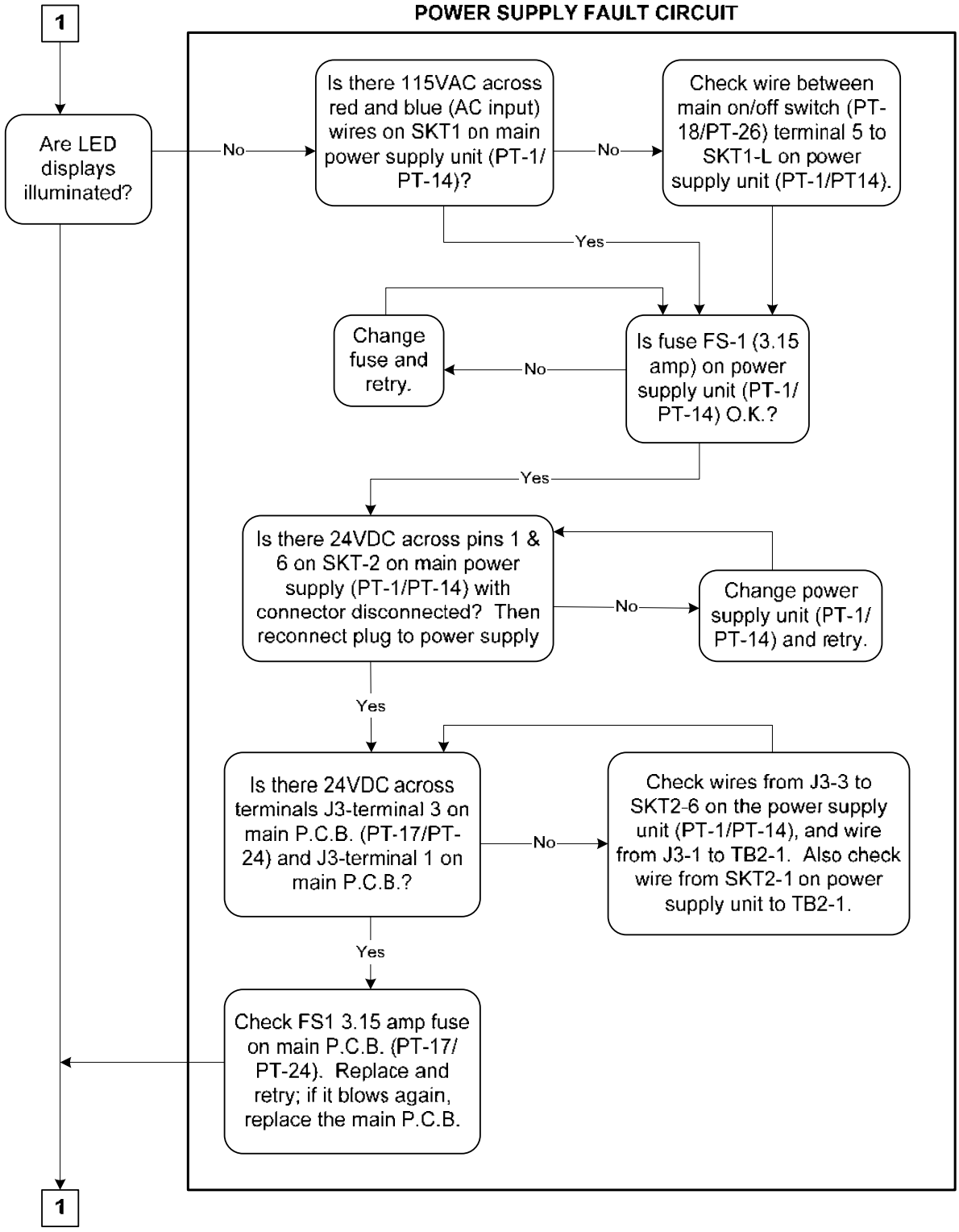
Error Codes for the BX Classic Oven		
Code	**Possible Causes**	**What To Do**
E01	Bake Data written to non-volatile (EEPROM) was not correctly verified as part of error checking.	EEPROM memory is integrated onto the microcontroller so this should be unlikely. Replace the controller.
E02	System read an out-of-range temperature value when retrieving bake data from EEPROM.	Any value above 250°C will cause this error. Indicated corruption of data. Reset back temperature to below 480°F/250°C.
E03	Thermocouple open circuit	Thermocouple or thermocouple wiring is bad. Check the thermocouple wiring. Replace as necessary

4 Tray & 10 Tray Classic LED Fault Analysis Chart


START
Is the oven plugged in and the power supply switched on?
No
Plug in machine and switch on.
Yes
Is control M.C.B. (PT-3/ PT-2) tripped?
Yes
Reset control M.C.B. (PT-3/PT-2). Will on/off switch (PT-18/PT-26) illuminate?
No
No
No
Check wires on on/ off switch (PT-18/ PT-26).
Is the main power switch (PT-18/PT-26) switched on and illuminated?
No
Press the button to switch on the power supply. Will button illuminate?
Is there 115VAC between neutral and both sides of control M.C.B. (PT-3/PT-2) when reset?
Yes
No
Yes
Yes
Check customer's power supply to oven, and check if circuit through reset M.C.B.
1

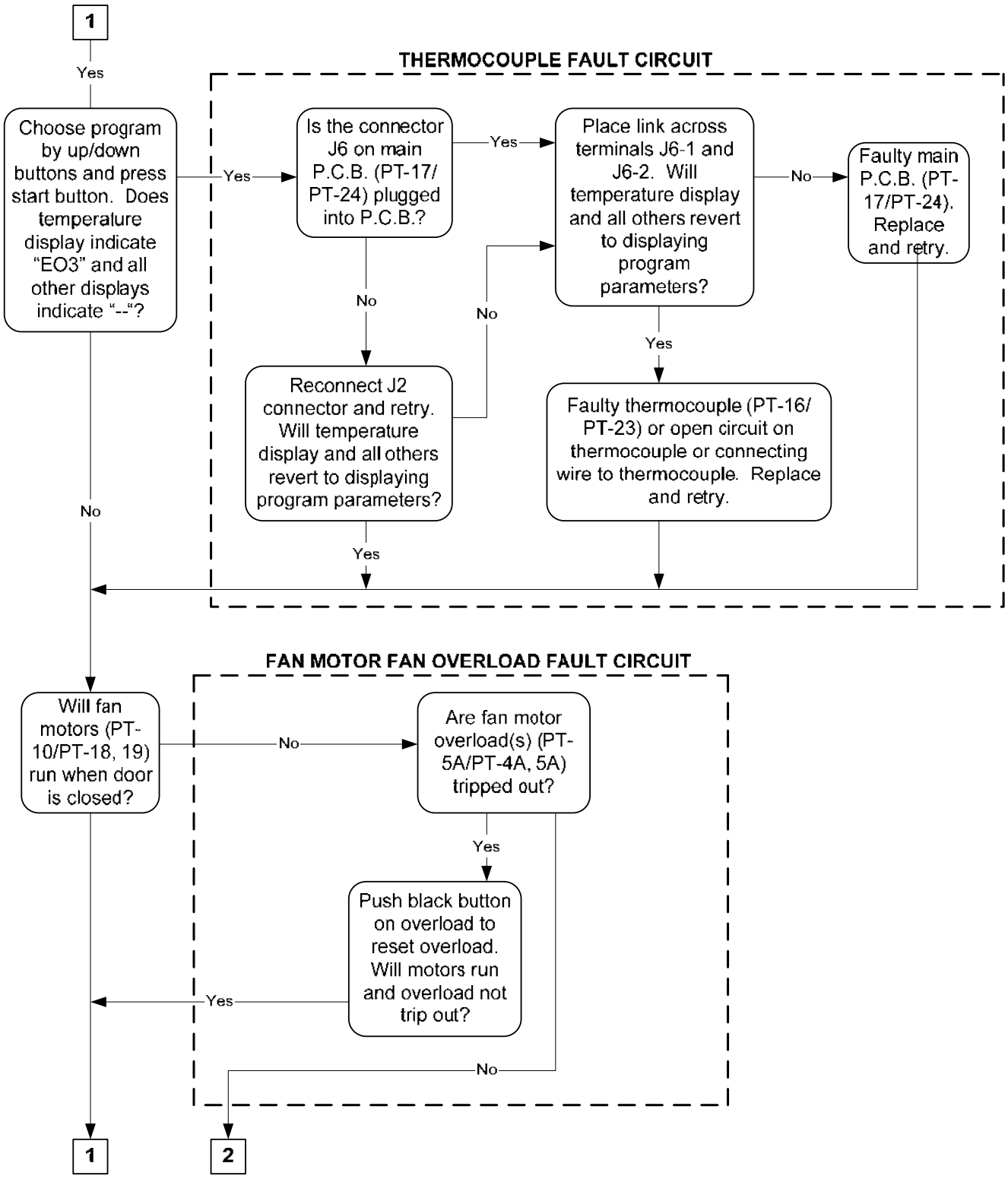
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
POWER SUPPLY FAULT CIRCUIT
Are LED displays illuminated?
No
Is there 115VAC across red and blue (AC input) wires on SKT1 on main power supply unit (PT-1/ PT-14)?
No
Check wire between main on/off switch (PT-18/PT-26) terminal 5 to SKT1-L on power supply unit (PT-1/PT14).
Yes
Change fuse and retry.
No
Is fuse FS-1 (3.15 amp) on power supply unit (PT-1/ PT-14) O.K.?
Yes
Is there 24VDC across pins 1 & 6 on SKT-2 on main power supply (PT-1/PT-14) with connector disconnected? Then reconnect plug to power supply
No
Change power supply unit (PT-1/ PT-14) and retry.
Yes
Is there 24VDC across terminals J3-terminal 3 on main P.C.B. (PT-17/PT-24) and J3-terminal 1 on main P.C.B.?
No
Check wires from J3-3 to SKT2-6 on the power supply unit (PT-1/PT-14), and wire from J3-1 to TB2-1. Also check wire from SKT2-1 on power supply unit to TB2-1.
Yes
Check FS1 3.15 amp fuse on main P.C.B. (PT-17/ PT-24). Replace and retry; if it blows again, replace the main P.C.B.
1

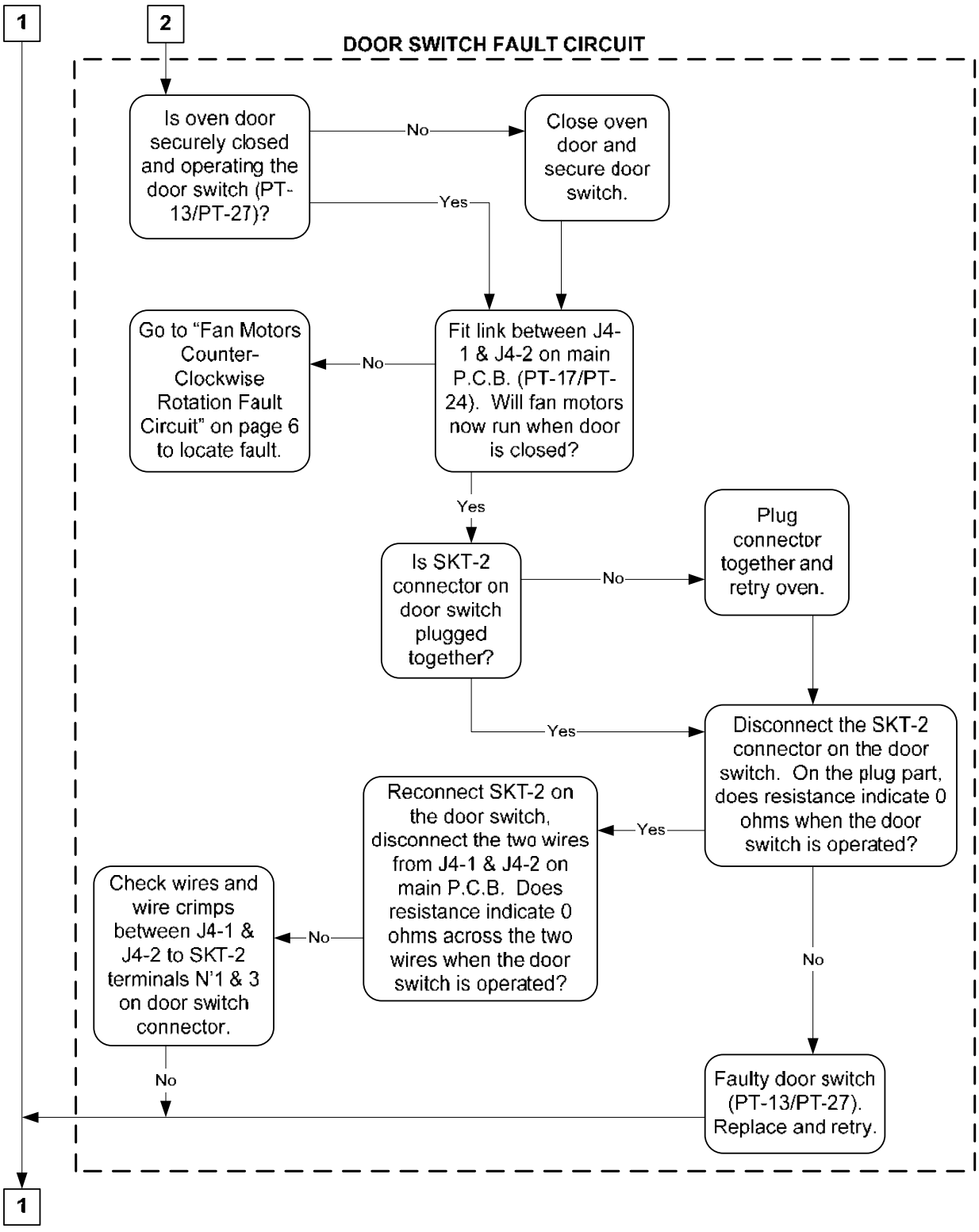
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
Yes
THERMOCOUPLE FAULT CIRCUIT
Choose program by up/down buttons and press start button. Does temperature display indicate "EO3" and all other displays indicate "--"?
Yes
Is the connector J6 on main P.C.B. (PT-17/ PT-24) plugged into P.C.B.?
Yes
Place link across terminals J6-1 and J6-2. Will temperature display and all others revert to displaying program parameters?
No
Faulty main P.C.B. (PT-17/PT-24). Replace and retry.
No
Reconnect J2 connector and retry. Will temperature display and all others revert to displaying program parameters?
No
Yes
Faulty thermocouple (PT-16/ PT-23) or open circuit on thermocouple or connecting wire to thermocouple. Replace and retry.
Yes
No
FAN MOTOR FAN OVERLOAD FAULT CIRCUIT
Will fan motors (PT-10/PT-18, 19) run when door is closed?
No
Are fan motor overload(s) (PT-5A/PT-4A, 5A) tripped out?
Yes
Push black button on overload to reset overload. Will motors run and overload not trip out?
Yes
No
1
2

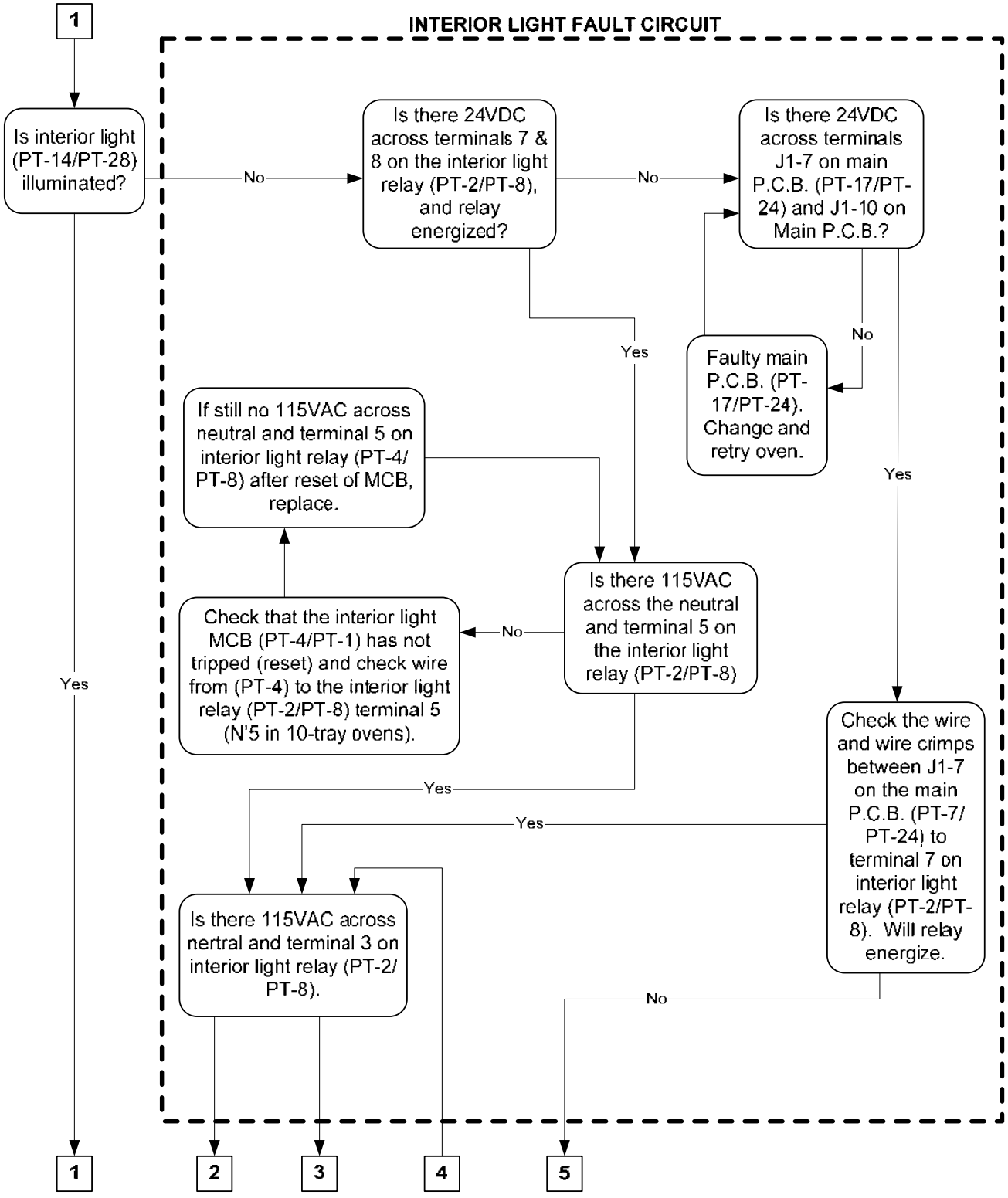
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
DOOR SWITCH FAULT CIRCUIT
Is oven door securely closed and operating the door switch (PT-13/PT-27)?
No
Close oven door and secure door switch.
Yes
Go to "Fan Motors Counter-Clockwise Rotation Fault Circuit" on page 6 to locate fault.
No
Fit link between J4-1 & J4-2 on main P.C.B. (PT-17/PT-24). Will fan motors now run when door is closed?
Yes
Is SKT-2 connector on door switch plugged together?
No
Plug connector together and retry oven.
Yes
Disconnect the SKT-2 connector on the door switch. On the plug part, does resistance indicate 0 ohms when the door switch is operated?
Yes
Reconnect SKT-2 on the door switch, disconnect the two wires from J4-1 & J4-2 on main P.C.B. Does resistance indicate 0 ohms across the two wires when the door switch is operated?
No
Check wires and wire crimps between J4-1 & J4-2 to SKT-2 terminals N'1 & 3 on door switch connector.
No
No
Faulty door switch (PT-13/PT-27). Replace and retry.
1

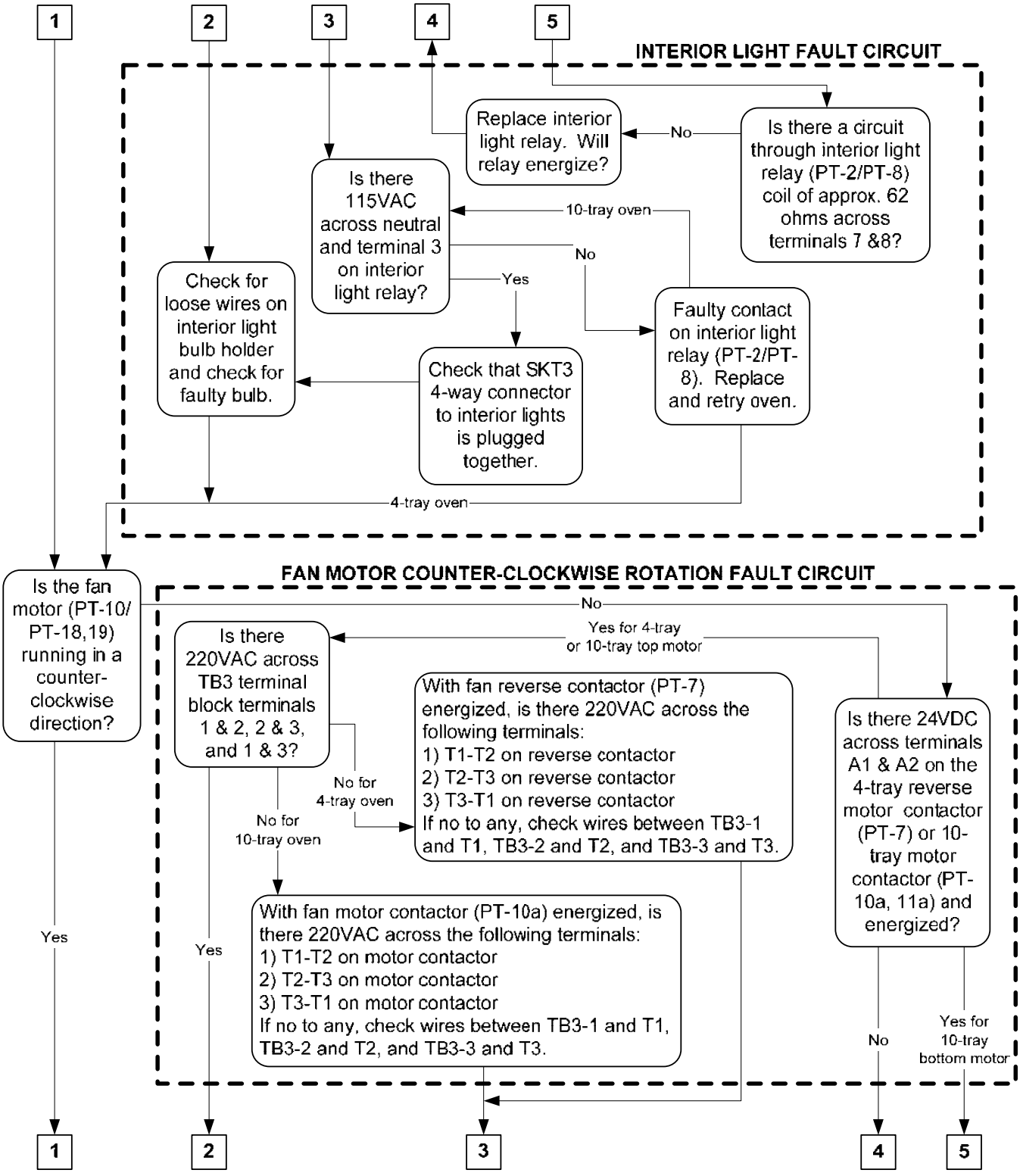
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
INTERIOR LIGHT FAULT CIRCUIT
Is interior light (PT-14/PT-28) illuminated?
No
Is there 24VDC across terminals 7 & 8 on the interior light relay (PT-2/PT-8), and relay energized?
No
Is there 24VDC across terminals J1-7 on main P.C.B. (PT-17/PT-24) and J1-10 on Main P.C.B.?
No
Faulty main P.C.B. (PT-17/PT-24). Change and retry oven.
Yes
Yes
If still no 115VAC across neutral and terminal 5 on interior light relay (PT-4/PT-8) after reset of MCB, replace.
Is there 115VAC across the neutral and terminal 5 on the interior light relay (PT-2/PT-8)
No
Check that the interior light MCB (PT-4/PT-1) has not tripped (reset) and check wire from (PT-4) to the interior light relay (PT-2/PT-8) terminal 5 (N'5 in 10-tray ovens).
Yes
Check the wire and wire crimps between J1-7 on the main P.C.B. (PT-7/PT-24) to terminal 7 on interior light relay (PT-2/PT-8). Will relay energize.
Yes
Yes
Is there 115VAC across nertral and terminal 3 on interior light relay (PT-2/PT-8).
No
1
2
3
4
5

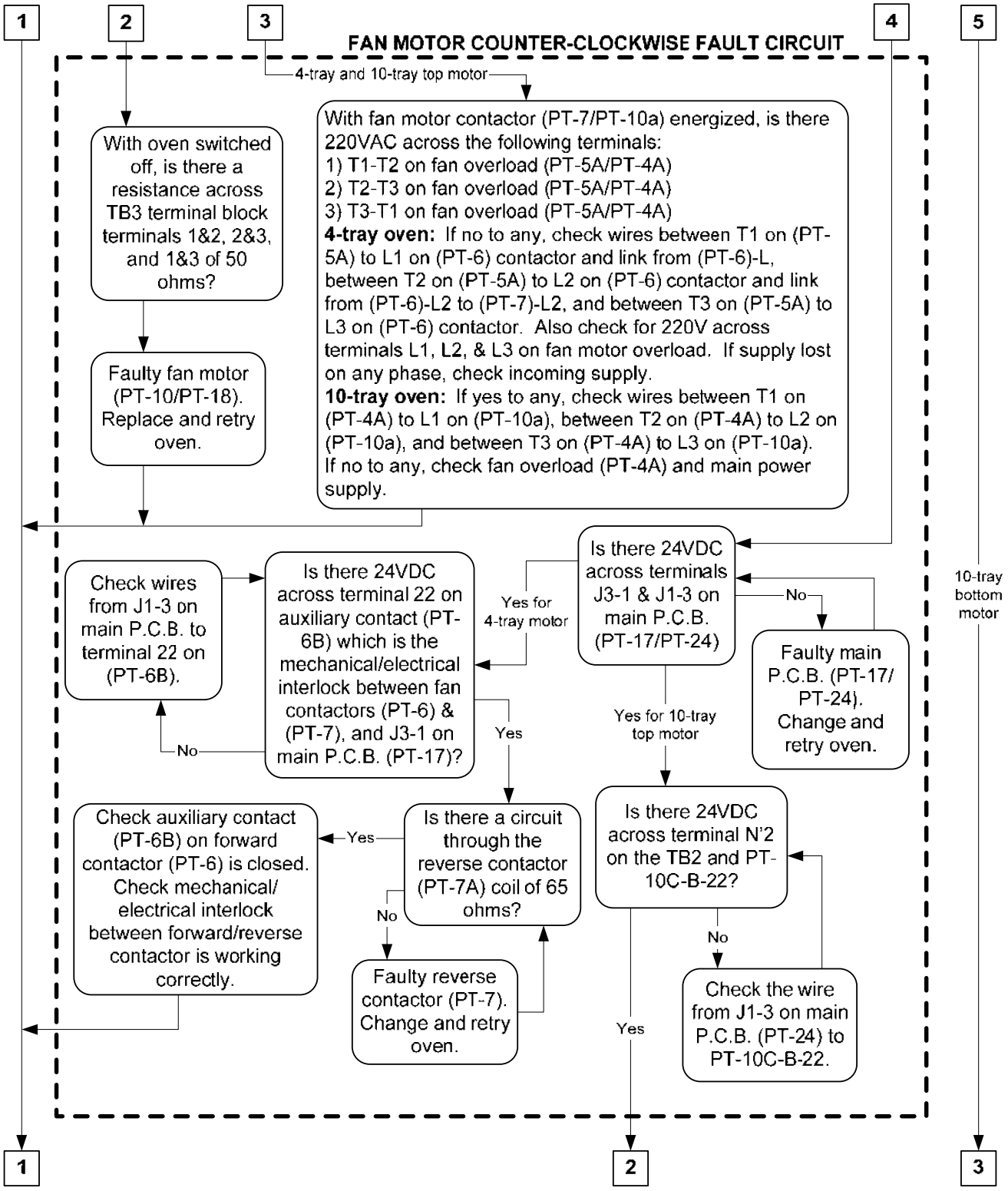
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
4
5
INTERIOR LIGHT FAULT CIRCUIT
Is there a circuit through interior light relay (PT-2/PT-8) coil of approx. 62 ohms across terminals 7 &8?
No
Replace interior light relay. Will relay energize?
Is there 115VAC across neutral and terminal 3 on interior light relay?
10-tray oven
No
Yes
Check for loose wires on interior light bulb holder and check for faulty bulb.
Check that SKT3 4-way connector to interior lights is plugged together.
Faulty contact on interior light relay (PT-2/PT-8). Replace and retry oven.
4-tray oven
Is the fan motor (PT-10/ PT-18,19) running in a counter-clockwise direction?
FAN MOTOR COUNTER-CLOCKWISE ROTATION FAULT CIRCUIT
No
Yes for 4-tray or 10-tray top motor
Is there 220VAC across TB3 terminal block terminals 1 & 2, 2 & 3, and 1 & 3?
No for 4-tray oven
No for 10-tray oven
With fan reverse contactor (PT-7) energized, is there 220VAC across the following terminals:
1) T1-T2 on reverse contactor
2) T2-T3 on reverse contactor
3) T3-T1 on reverse contactor
If no to any, check wires between TB3-1 and T1, TB3-2 and T2, and TB3-3 and T3.
Is there 24VDC across terminals A1 & A2 on the 4-tray reverse motor contactor (PT-7) or 10-tray motor contactor (PT-10a, 11a) and energized?
Yes
Yes
With fan motor contactor (PT-10a) energized, is there 220VAC across the following terminals:
1) T1-T2 on motor contactor
2) T2-T3 on motor contactor
3) T3-T1 on motor contactor
If no to any, check wires between TB3-1 and T1, TB3-2 and T2, and TB3-3 and T3.
No
Yes for 10-tray bottom motor
1
2
3
4
5

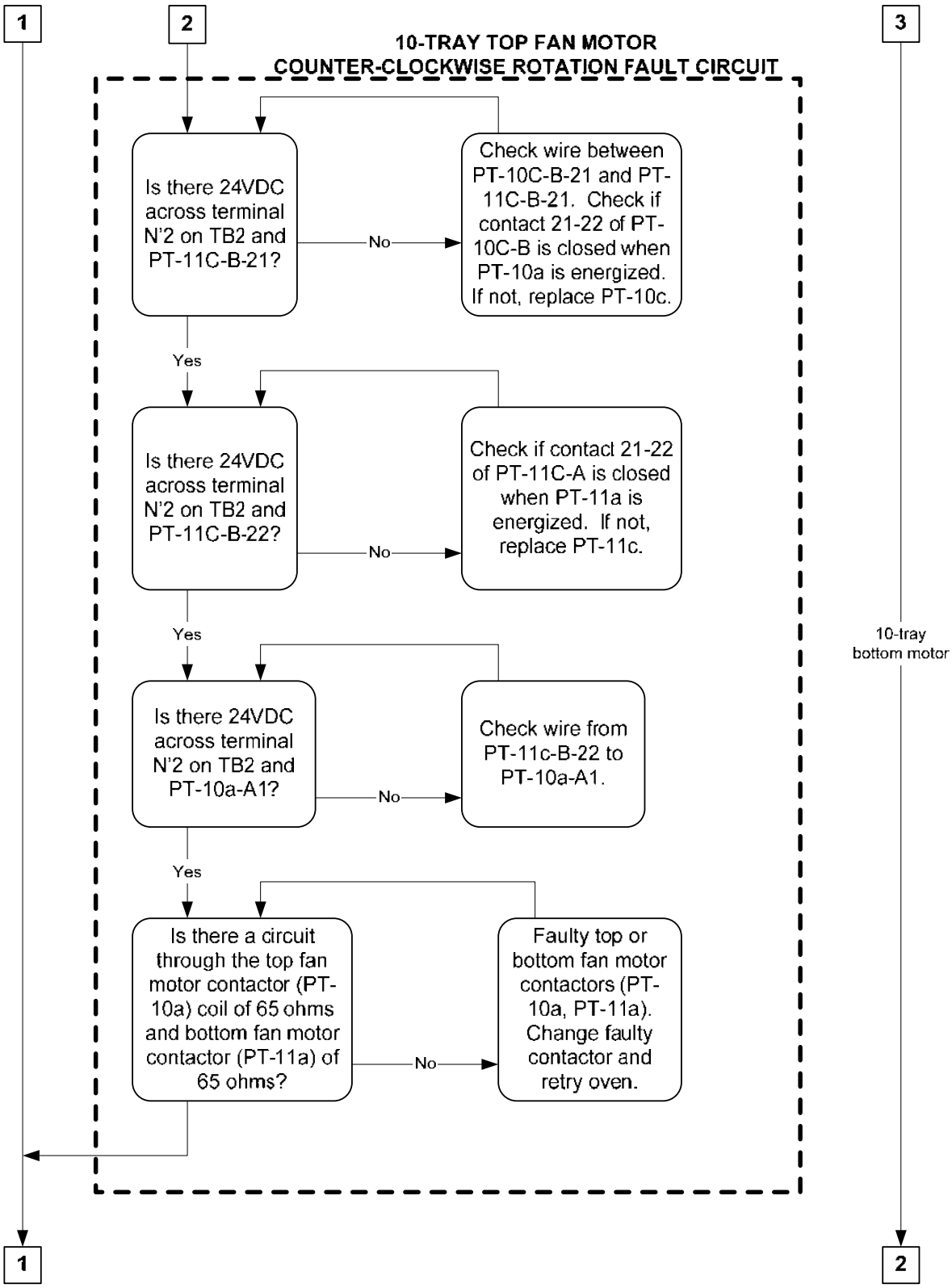
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
4
5
FAN MOTOR COUNTER-CLOCKWISE FAULT CIRCUIT
4-tray and 10-tray top motor
With oven switched off, is there a resistance across TB3 terminal block terminals 1&2, 2&3, and 1&3 of 50 ohms?
Faulty fan motor (PT-10/PT-18). Replace and retry oven.
With fan motor contactor (PT-7/PT-10a) energized, is there 220VAC across the following terminals:
1) T1-T2 on fan overload (PT-5A/PT-4A)
2) T2-T3 on fan overload (PT-5A/PT-4A)
3) T3-T1 on fan overload (PT-5A/PT-4A)
4-tray oven: If no to any, check wires between T1 on (PT-5A) to L1 on (PT-6) contactor and link from (PT-6)-L, between T2 on (PT-5A) to L2 on (PT-6) contactor and link from (PT-6)-L2 to (PT-7)-L2, and between T3 on (PT-5A) to L3 on (PT-6) contactor. Also check for 220V across terminals L1, L2, & L3 on fan motor overload. If supply lost on any phase, check incoming supply.
10-tray oven: If yes to any, check wires between T1 on (PT-4A) to L1 on (PT-10a), between T2 on (PT-4A) to L2 on (PT-10a), and between T3 on (PT-4A) to L3 on (PT-10a). If no to any, check fan overload (PT-4A) and main power supply.
Is there 24VDC across terminals J3-1 & J1-3 on main P.C.B. (PT-17/PT-24)
No
Faulty main P.C.B. (PT-17/PT-24). Change and retry oven.
Yes for 4-tray motor
Check wires from J1-3 on main P.C.B. to terminal 22 on (PT-6B).
Is there 24VDC across terminal 22 on auxiliary contact (PT-6B) which is the mechanical/electrical interlock between fan contactors (PT-6) & (PT-7), and J3-1 on main P.C.B. (PT-17)?
No
Yes
Yes for 10-tray top motor
10-tray bottom motor
Is there 24VDC across terminal N'2 on the TB2 and PT-10C-B-22?
No
Check the wire from J1-3 on main P.C.B. (PT-24) to PT-10C-B-22.
Yes
Is there a circuit through the reverse contactor (PT-7A) coil of 65 ohms?
Yes
No
Faulty reverse contactor (PT-7). Change and retry oven.
Check auxiliary contact (PT-6B) on forward contactor (PT-6) is closed. Check mechanical/ electrical interlock between forward/reverse contactor is working correctly.
1
2
3

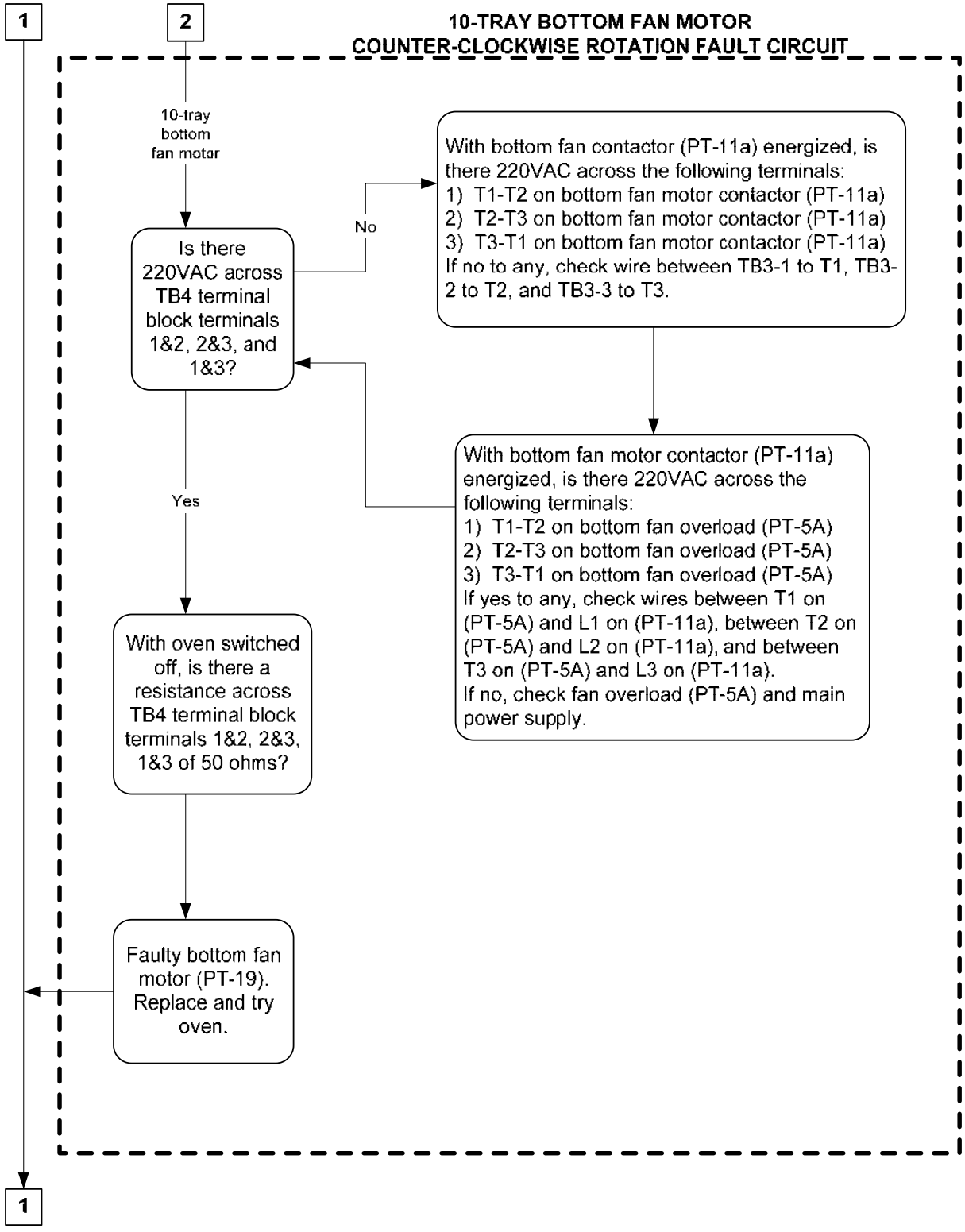
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
10-TRAY TOP FAN MOTOR
COUNTER-CLOCKWISE ROTATION FAULT CIRCUIT
Is there 24VDC across terminal N'2 on TB2 and PT-11C-B-21?
No
Check wire between PT-10C-B-21 and PT-11C-B-21. Check if contact 21-22 of PT-10C-B is closed when PT-10a is energized. If not, replace PT-10c.
Yes
Is there 24VDC across terminal N'2 on TB2 and PT-11C-B-22?
No
Check if contact 21-22 of PT-11C-A is closed when PT-11a is energized. If not, replace PT-11c.
Yes
Is there 24VDC across terminal N'2 on TB2 and PT-10a-A1?
No
Check wire from PT-11c-B-22 to PT-10a-A1.
Yes
Is there a circuit through the top fan motor contactor (PT-10a) coil of 65 ohms and bottom fan motor contactor (PT-11a) of 65 ohms?
No
Faulty top or bottom fan motor contactors (PT-10a, PT-11a). Change faulty contactor and retry oven.
10-tray bottom motor
1
2

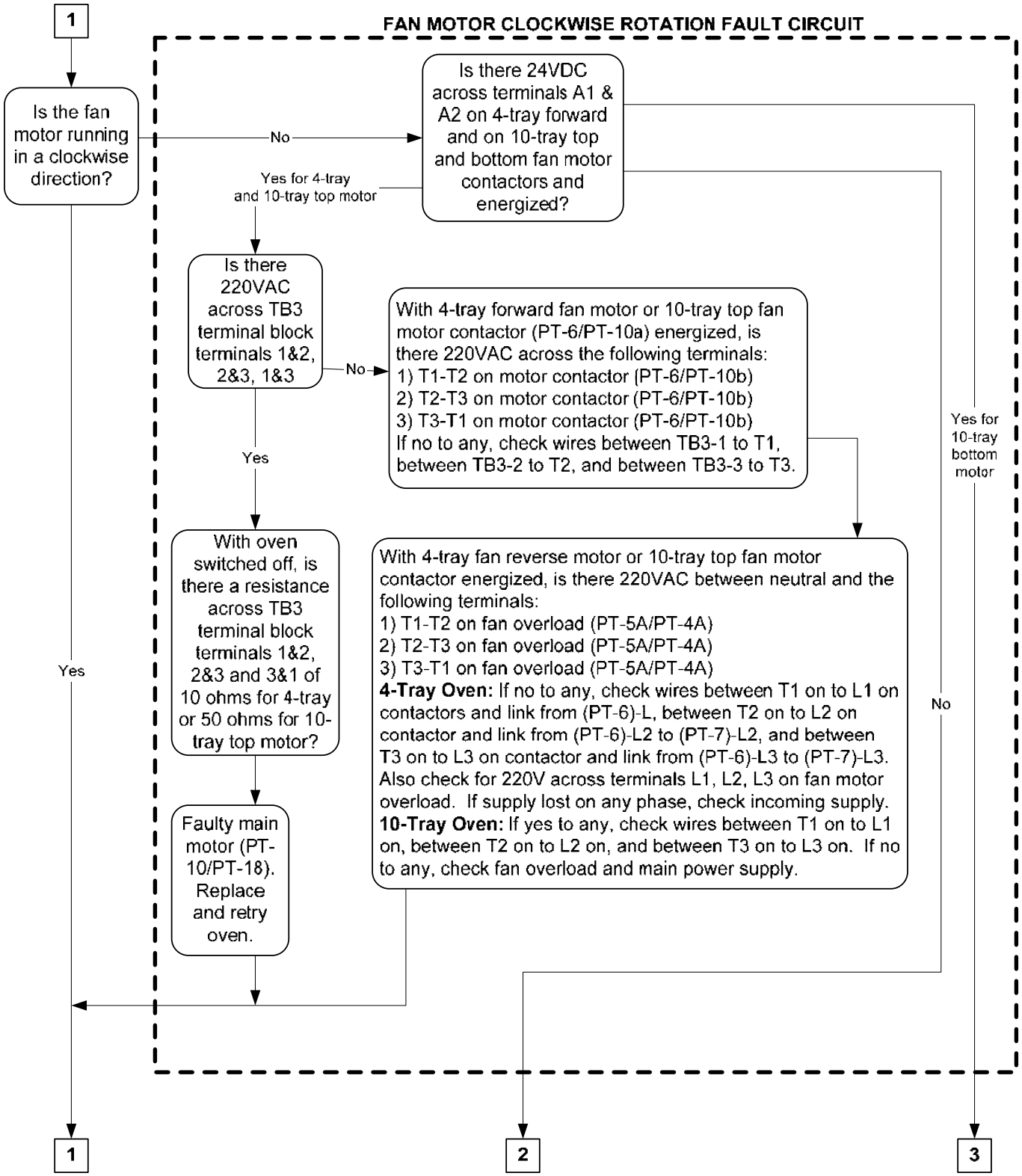
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
10-TRAY BOTTOM FAN MOTOR
COUNTER-CLOCKWISE ROTATION FAULT CIRCUIT
10-tray bottom fan motor
Is there 220VAC across TB4 terminal block terminals 1&2, 2&3, and 1&3?
No
With bottom fan contactor (PT-11a) energized, is there 220VAC across the following terminals:
1) T1-T2 on bottom fan motor contactor (PT-11a)
2) T2-T3 on bottom fan motor contactor (PT-11a)
3) T3-T1 on bottom fan motor contactor (PT-11a)
If no to any, check wire between TB3-1 to T1, TB3-2 to T2, and TB3-3 to T3.
With bottom fan motor contactor (PT-11a) energized, is there 220VAC across the following terminals:
1) T1-T2 on bottom fan overload (PT-5A)
2) T2-T3 on bottom fan overload (PT-5A)
3) T3-T1 on bottom fan overload (PT-5A)
If yes to any, check wires between T1 on (PT-5A) and L1 on (PT-11a), between T2 on (PT-5A) and L2 on (PT-11a), and between T3 on (PT-5A) and L3 on (PT-11a).
If no, check fan overload (PT-5A) and main power supply.
Yes
With oven switched off, is there a resistance across TB4 terminal block terminals 1&2, 2&3, 1&3 of 50 ohms?
Faulty bottom fan motor (PT-19). Replace and try oven.
1

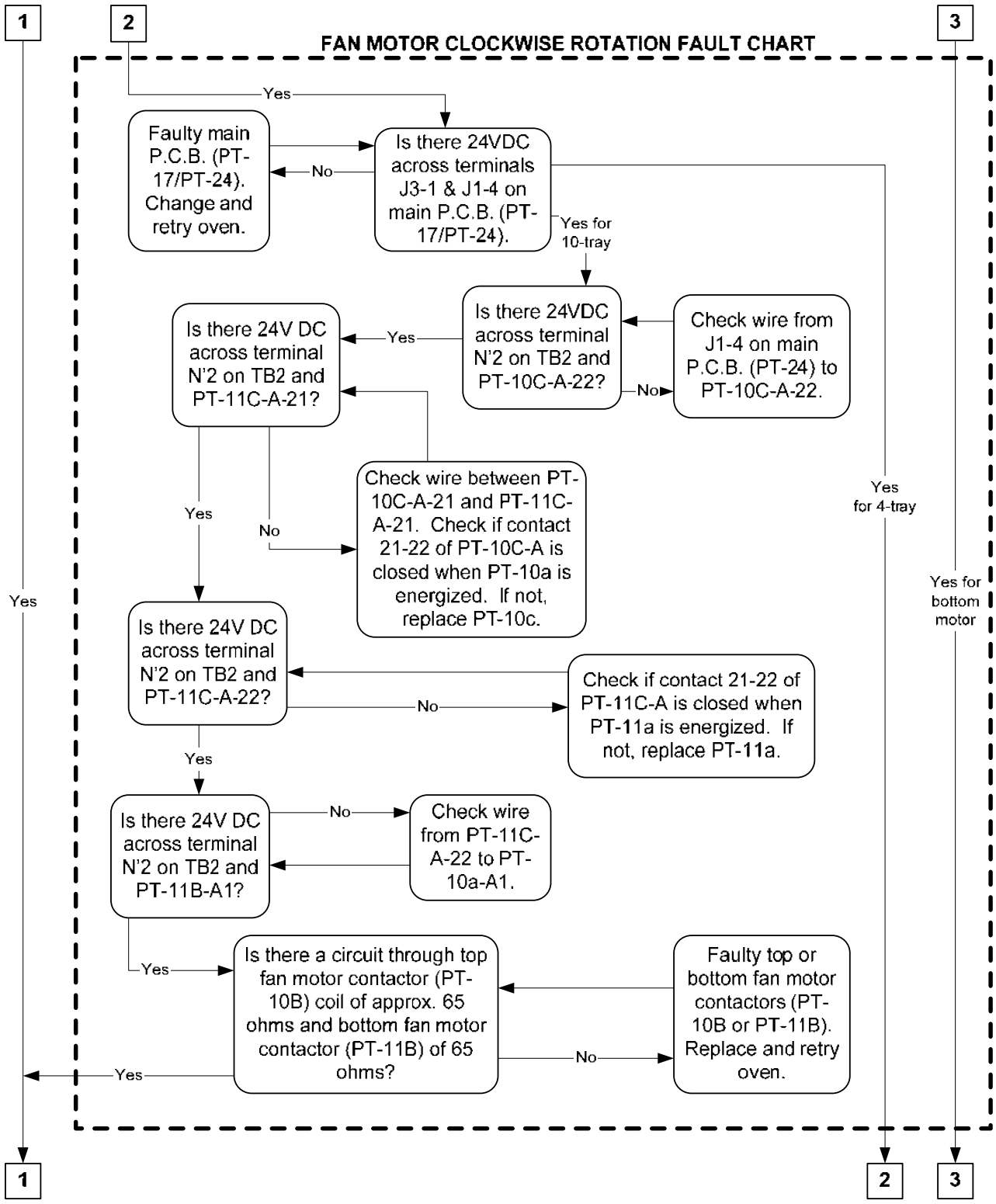
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
FAN MOTOR CLOCKWISE ROTATION FAULT CIRCUIT
Is the fan motor running in a clockwise direction?
No
Yes for 4-tray and 10-tray top motor
Is there 24VDC across terminals A1 & A2 on 4-tray forward and on 10-tray top and bottom fan motor contactors and energized?
Yes for 10-tray bottom motor
Is there 220VAC across TB3 terminal block terminals 1&2, 2&3, 1&3
No
With 4-tray forward fan motor or 10-tray top fan motor contactor (PT-6/PT-10a) energized, is there 220VAC across the following terminals:
1) T1-T2 on motor contactor (PT-6/PT-10b)
2) T2-T3 on motor contactor (PT-6/PT-10b)
3) T3-T1 on motor contactor (PT-6/PT-10b)
If no to any, check wires between TB3-1 to T1, between TB3-2 to T2, and between TB3-3 to T3.
Yes
With oven switched off, is there a resistance across TB3 terminal block terminals 1&2, 2&3 and 3&1 of 10 ohms for 4-tray or 50 ohms for 10-tray top motor?
With 4-tray fan reverse motor or 10-tray top fan motor contactor energized, is there 220VAC between neutral and the following terminals:
1) T1-T2 on fan overload (PT-5A/PT-4A)
2) T2-T3 on fan overload (PT-5A/PT-4A)
3) T3-T1 on fan overload (PT-5A/PT-4A)
4-Tray Oven: If no to any, check wires between T1 on to L1 on contactors and link from (PT-6)-L, between T2 on to L2 on contactor and link from (PT-6)-L2 to (PT-7)-L2, and between T3 on to L3 on contactor and link from (PT-6)-L3 to (PT-7)-L3. Also check for 220V across terminals L1, L2, L3 on fan motor overload. If supply lost on any phase, check incoming supply.
10-Tray Oven: If yes to any, check wires between T1 on to L1 on, between T2 on to L2 on, and between T3 on to L3 on. If no to any, check fan overload and main power supply.
Yes
No
Faulty main motor (PT-10/PT-18). Replace and retry oven.
1
2
3

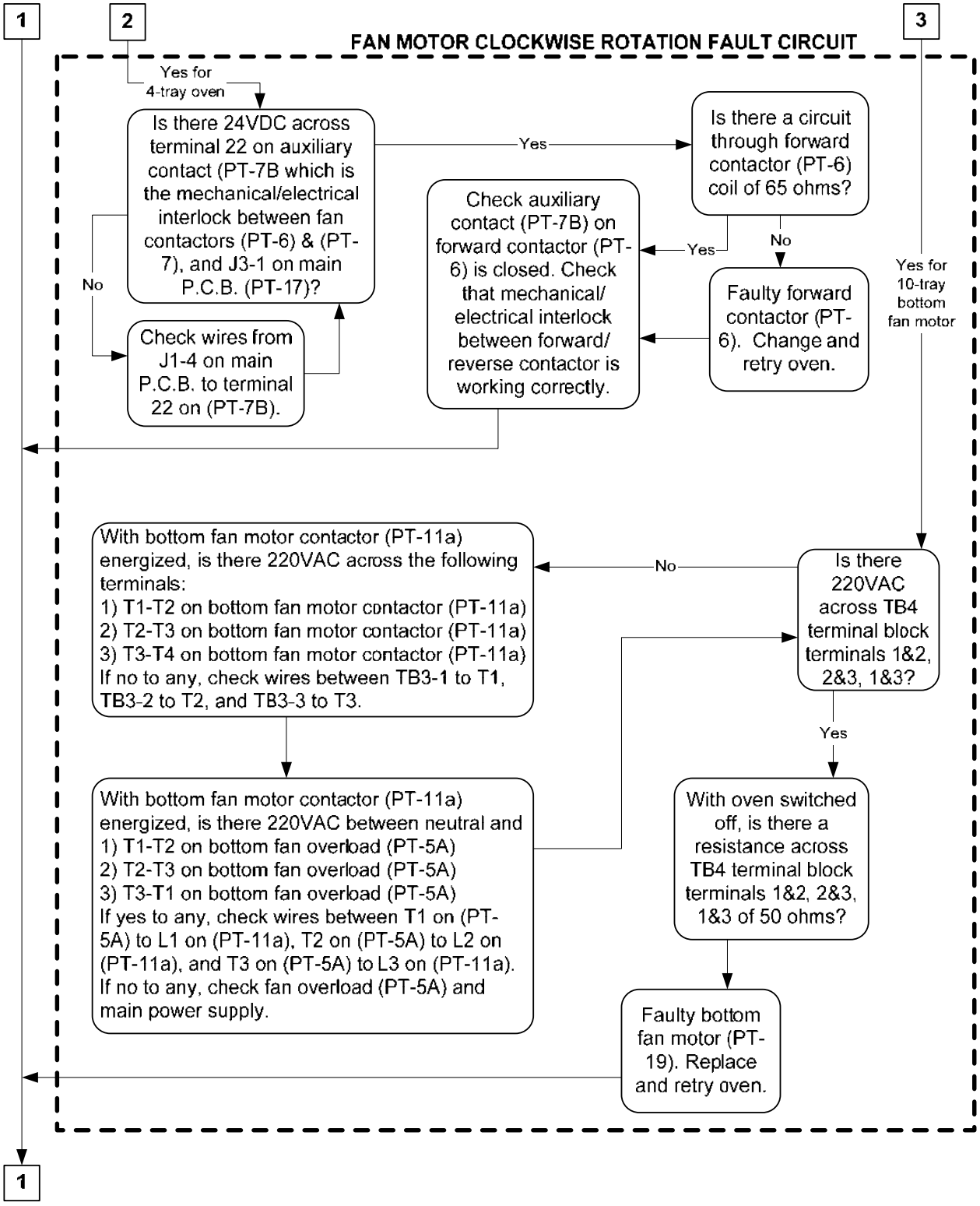
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
FAN MOTOR CLOCKWISE ROTATION FAULT CHART
Yes
Faulty main P.C.B. (PT-17/PT-24). Change and retry oven.
No
Is there 24VDC across terminals J3-1 & J1-4 on main P.C.B. (PT-17/PT-24).
Yes for 10-tray
Is there 24VDC across terminal N'2 on TB2 and PT-10C-A-22?
Check wire from J1-4 on main P.C.B. (PT-24) to PT-10C-A-22.
No
Yes
Is there 24V DC across terminal N'2 on TB2 and PT-11C-A-21?
Yes
No
Check wire between PT-10C-A-21 and PT-11C-A-21. Check if contact 21-22 of PT-10C-A is closed when PT-10a is energized. If not, replace PT-10c.
Yes for 4-tray
Yes for bottom motor
Yes
Is there 24V DC across terminal N'2 on TB2 and PT-11C-A-22?
No
Check if contact 21-22 of PT-11C-A is closed when PT-11a is energized. If not, replace PT-11a.
Yes
Is there 24V DC across terminal N'2 on TB2 and PT-11B-A1?
No
Check wire from PT-11C-A-22 to PT-10a-A1.
Yes
Is there a circuit through top fan motor contactor (PT-10B) coil of approx. 65 ohms and bottom fan motor contactor (PT-11B) of 65 ohms?
Faulty top or bottom fan motor contactors (PT-10B or PT-11B). Replace and retry oven.
No
Yes
1
2
3

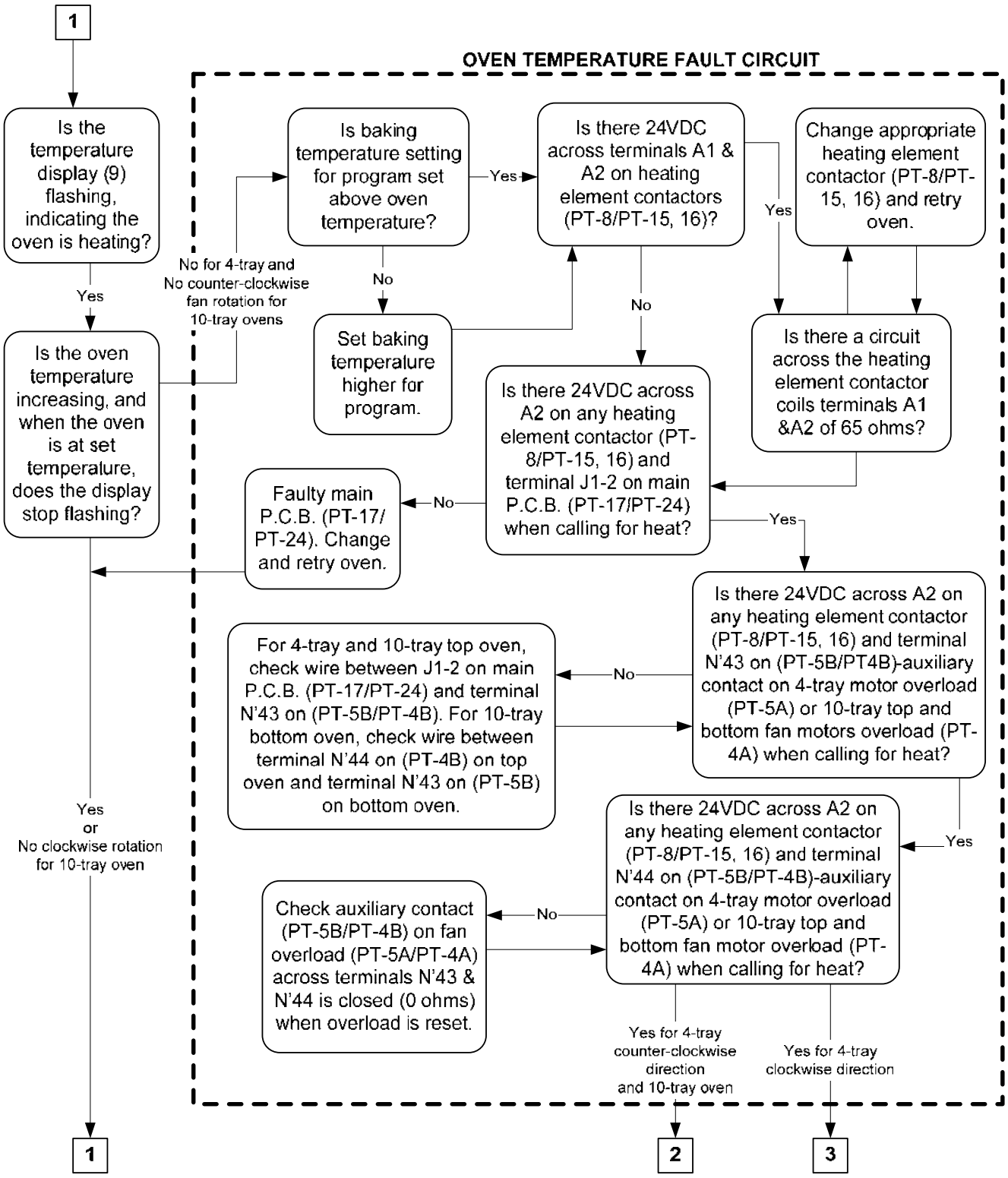
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
FAN MOTOR CLOCKWISE ROTATION FAULT CIRCUIT
Yes for 4-tray oven
Is there 24VDC across terminal 22 on auxiliary contact (PT-7B which is the mechanical/electrical interlock between fan contactors (PT-6) & (PT-7), and J3-1 on main P.C.B. (PT-17)?
Yes
No
Check wires from J1-4 on main P.C.B. to terminal 22 on (PT-7B).
Is there a circuit through forward contactor (PT-6) coil of 65 ohms?
Yes
No
Check auxiliary contact (PT-7B) on forward contactor (PT-6) is closed. Check that mechanical/ electrical interlock between forward/ reverse contactor is working correctly.
Faulty forward contactor (PT-6). Change and retry oven.
Yes for 10-tray bottom fan motor
With bottom fan motor contactor (PT-11a) energized, is there 220VAC across the following terminals:
1) T1-T2 on bottom fan motor contactor (PT-11a)
2) T2-T3 on bottom fan motor contactor (PT-11a)
3) T3-T4 on bottom fan motor contactor (PT-11a)
If no to any, check wires between TB3-1 to T1, TB3-2 to T2, and TB3-3 to T3.
No
Is there 220VAC across TB4 terminal block terminals 1&2, 2&3, 1&3?
Yes
With bottom fan motor contactor (PT-11a) energized, is there 220VAC between neutral and
1) T1-T2 on bottom fan overload (PT-5A)
2) T2-T3 on bottom fan overload (PT-5A)
3) T3-T1 on bottom fan overload (PT-5A)
If yes to any, check wires between T1 on (PT-5A) to L1 on (PT-11a), T2 on (PT-5A) to L2 on (PT-11a), and T3 on (PT-5A) to L3 on (PT-11a). If no to any, check fan overload (PT-5A) and main power supply.
With oven switched off, is there a resistance across TB4 terminal block terminals 1&2, 2&3, 1&3 of 50 ohms?
Faulty bottom fan motor (PT-19). Replace and retry oven.
1

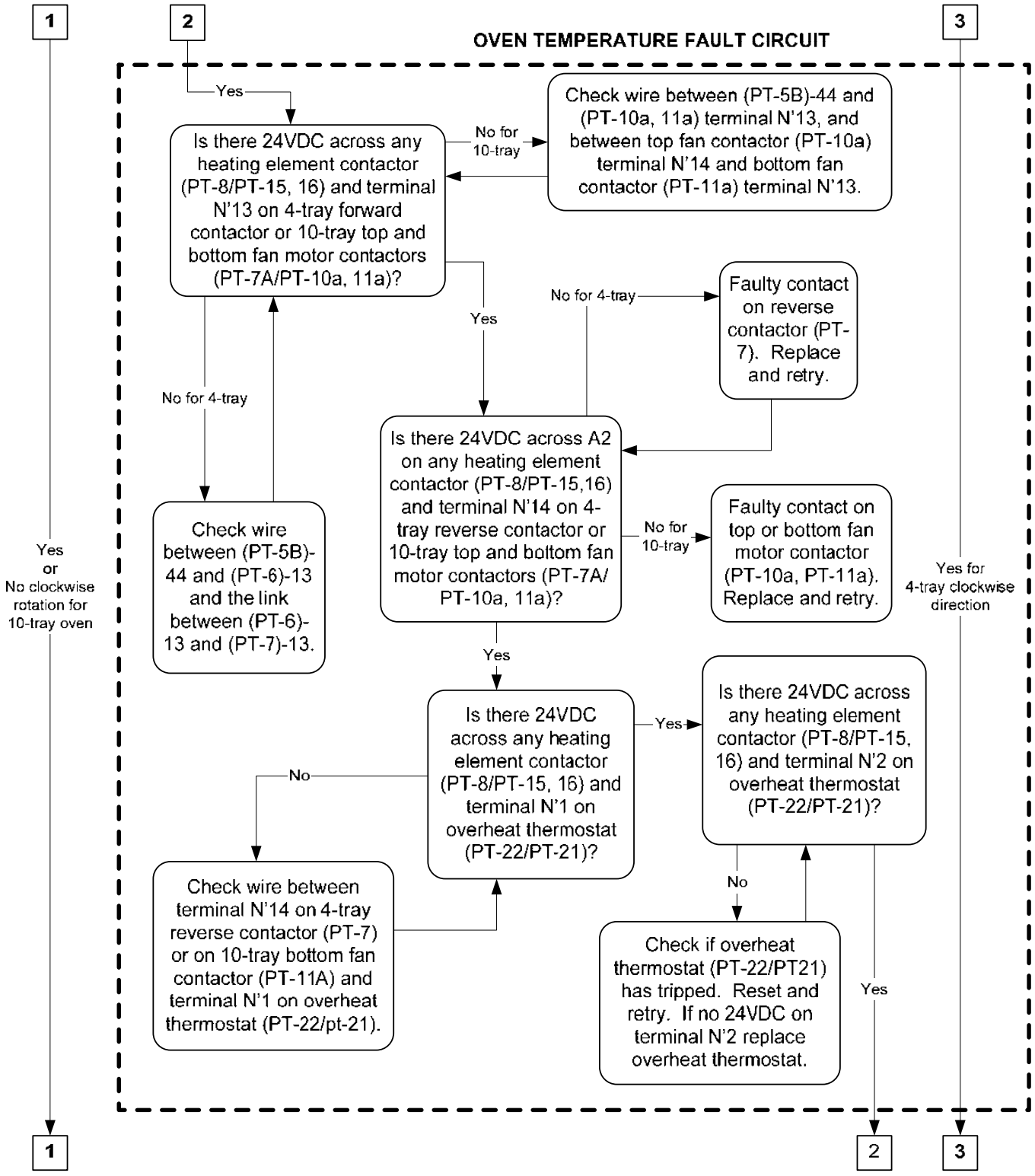
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
OVEN TEMPERATURE FAULT CIRCUIT
Is the temperature display (9) flashing, indicating the oven is heating?
Yes
Is the oven temperature increasing, and when the oven is at set temperature, does the display stop flashing?
No for 4-tray and No counter-clockwise fan rotation for 10-tray ovens
Is baking temperature setting for program set above oven temperature?
Yes
No
Set baking temperature higher for program.
Is there 24VDC across terminals A1 & A2 on heating element contactors (PT-8/PT-15, 16)?
Yes
Change appropriate heating element contactor (PT-8/PT-15, 16) and retry oven.
No
Is there a circuit across the heating element contactor coils terminals A1 &A2 of 65 ohms?
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal J1-2 on main P.C.B. (PT-17/PT-24) when calling for heat?
No
Faulty main P.C.B. (PT-17/ PT-24). Change and retry oven.
Yes
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal N'43 on (PT-5B/PT4B)-auxiliary contact on 4-tray motor overload (PT-5A) or 10-tray top and bottom fan motors overload (PT-4A) when calling for heat?
No
For 4-tray and 10-tray top oven, check wire between J1-2 on main P.C.B. (PT-17/PT-24) and terminal N'43 on (PT-5B/PT-4B). For 10-tray bottom oven, check wire between terminal N'44 on (PT-4B) on top oven and terminal N'43 on (PT-5B) on bottom oven.
Yes
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal N'44 on (PT-5B/PT-4B)-auxiliary contact on 4-tray motor overload (PT-5A) or 10-tray top and bottom fan motor overload (PT-4A) when calling for heat?
No
Check auxiliary contact (PT-5B/PT-4B) on fan overload (PT-5A/PT-4A) across terminals N'43 & N'44 is closed (0 ohms) when overload is reset.
Yes for 4-tray counter-clockwise direction and 10-tray oven
Yes for 4-tray clockwise direction
Yes or No clockwise rotation for 10-tray oven
1
2
3

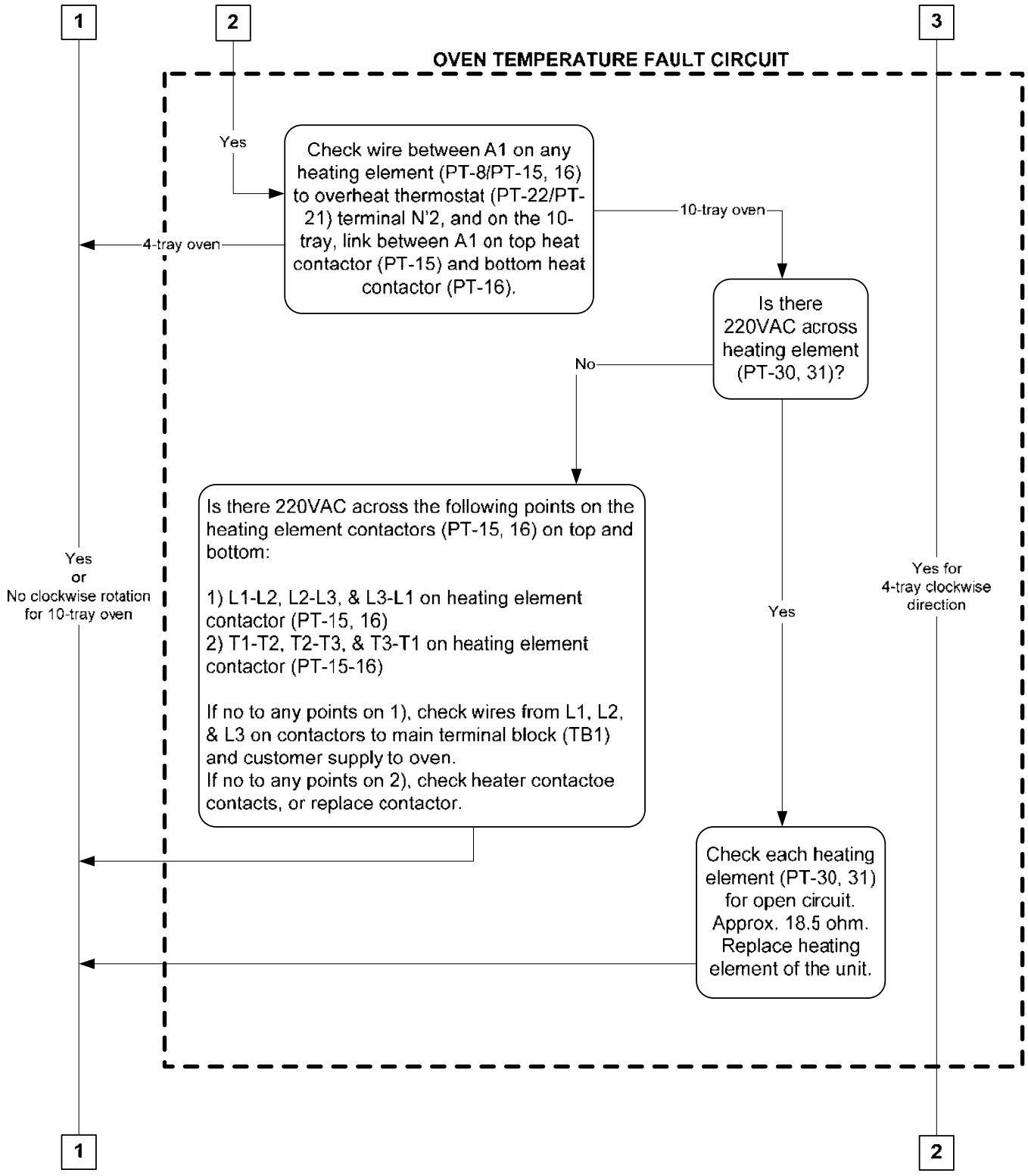
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
OVEN TEMPERATURE FAULT CIRCUIT
Yes
Is there 24VDC across any heating element contactor (PT-8/PT-15, 16) and terminal N'13 on 4-tray forward contactor or 10-tray top and bottom fan motor contactors (PT-7A/PT-10a, 11a)?
No for 10-tray
Check wire between (PT-5B)-44 and (PT-10a, 11a) terminal N'13, and between top fan contactor (PT-10a) terminal N'14 and bottom fan contactor (PT-11a) terminal N'13.
Yes
No for 4-tray
Faulty contact on reverse contactor (PT-7). Replace and retry.
No for 4-tray
Check wire between (PT-5B)-44 and (PT-6)-13 and the link between (PT-6)-13 and (PT-7)-13.
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15,16) and terminal N'14 on 4-tray reverse contactor or 10-tray top and bottom fan motor contactors (PT-7A/PT-10a, 11a)?
No for 10-tray
Faulty contact on top or bottom fan motor contactor (PT-10a, PT-11a). Replace and retry.
Yes
Is there 24VDC across any heating element contactor (PT-8/PT-15, 16) and terminal N'1 on overheat thermostat (PT-22/PT-21)?
Yes
Is there 24VDC across any heating element contactor (PT-8/PT-15, 16) and terminal N'2 on overheat thermostat (PT-22/PT-21)?
No
Check wire between terminal N'14 on 4-tray reverse contactor (PT-7) or on 10-tray bottom fan contactor (PT-11A) and terminal N'1 on overheat thermostat (PT-22/pt-21).
No
Check if overheat thermostat (PT-22/PT21) has tripped. Reset and retry. If no 24VDC on terminal N'2 replace overheat thermostat.
Yes
Yes or No clockwise rotation for 10-tray oven
Yes for 4-tray clockwise direction
1
2
3

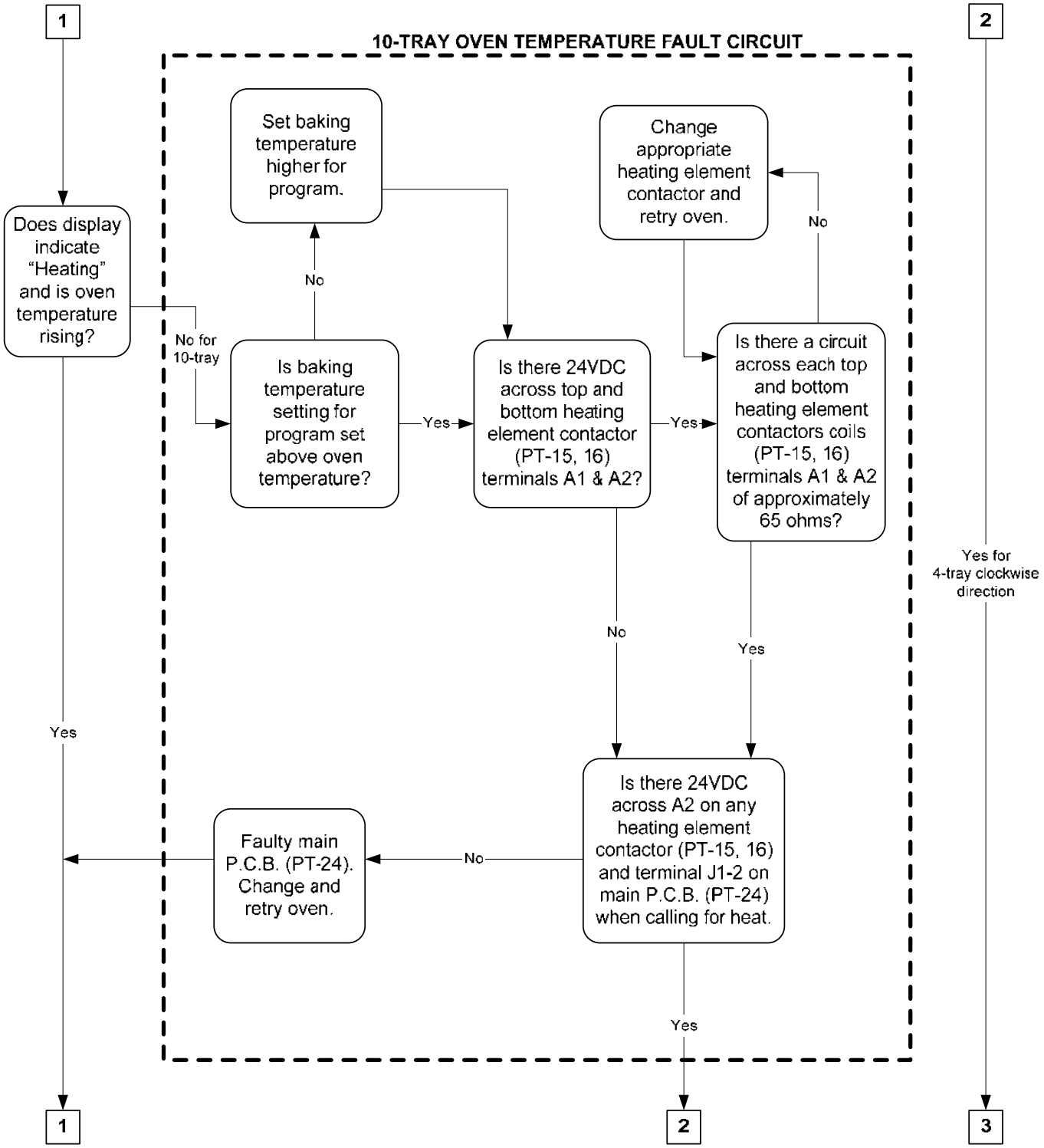
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
OVEN TEMPERATURE FAULT CIRCUIT
Yes
Check wire between A1 on any heating element (PT-8/PT-15, 16) to overheat thermostat (PT-22/PT-21) terminal N'2, and on the 10-tray, link between A1 on top heat contactor (PT-15) and bottom heat contactor (PT-16).
4-tray oven
10-tray oven
Is there 220VAC across heating element (PT-30, 31)?
No
Yes
Is there 220VAC across the following points on the heating element contactors (PT-15, 16) on top and bottom:
1) L1-L2, L2-L3, & L3-L1 on heating element contactor (PT-15, 16)
2) T1-T2, T2-T3, & T3-T1 on heating element contactor (PT-15-16)
If no to any points on 1), check wires from L1, L2, & L3 on contactors to main terminal block (TB1) and customer supply to oven.
If no to any points on 2), check heater contactoe contacts, or replace contactor.
Yes
or
No clockwise rotation for 10-tray oven
Yes
Yes for 4-tray clockwise direction
Check each heating element (PT-30, 31) for open circuit. Approx. 18.5 ohm. Replace heating element of the unit.
1
2

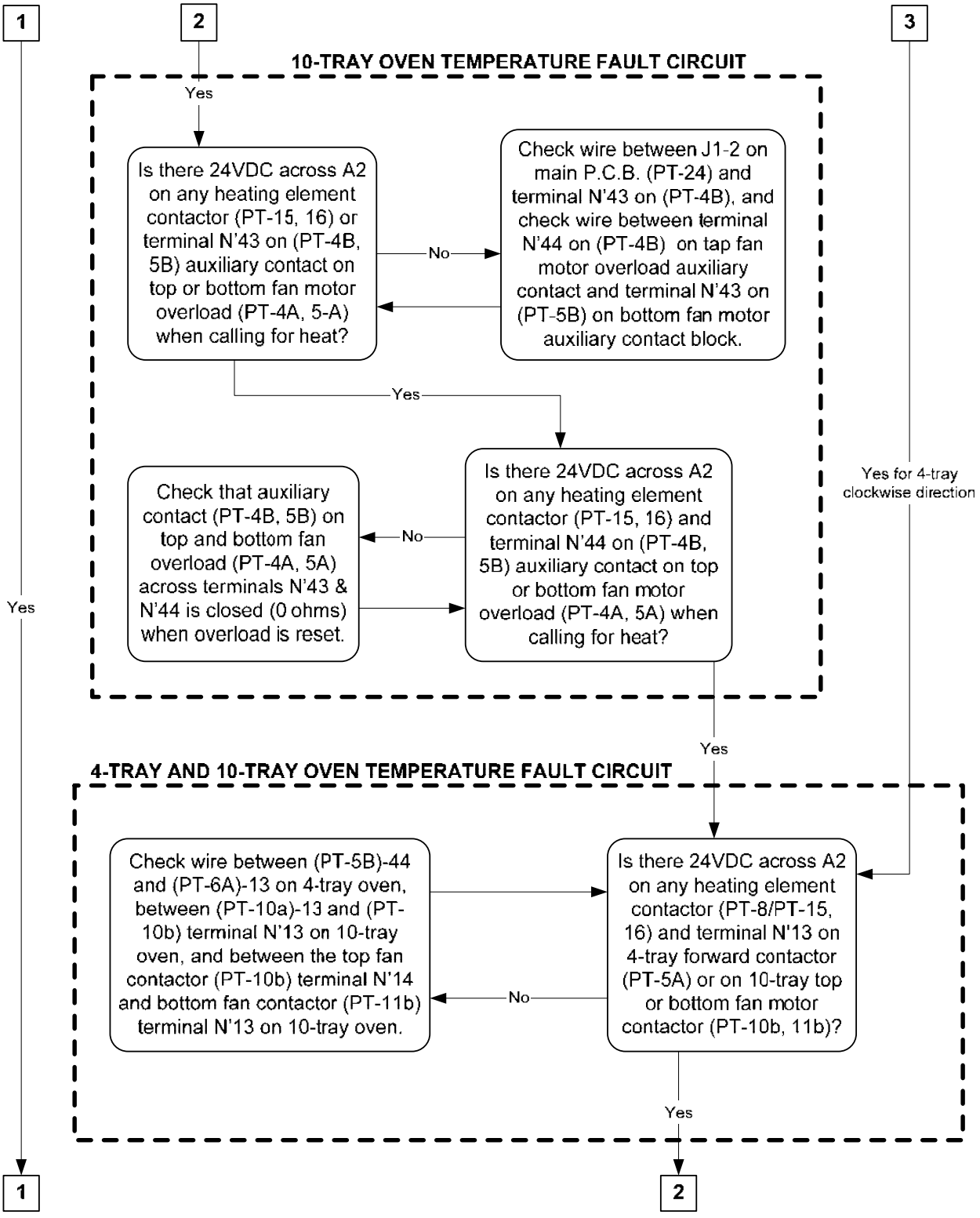
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
10-TRAY OVEN TEMPERATURE FAULT CIRCUIT
Set baking temperature higher for program.
Change appropriate heating element contactor and retry oven.
Does display indicate "Heating" and is oven temperature rising?
No
No
No for 10-tray
Is baking temperature setting for program set above oven temperature?
Yes
Is there 24VDC across top and bottom heating element contactor (PT-15, 16) terminals A1 & A2?
Yes
Is there a circuit across each top and bottom heating element contactors coils (PT-15, 16) terminals A1 & A2 of approximately 65 ohms?
Yes for 4-tray clockwise direction
No
Yes
Yes
Is there 24VDC across A2 on any heating element contactor (PT-15, 16) and terminal J1-2 on main P.C.B. (PT-24) when calling for heat.
Faulty main P.C.B. (PT-24). Change and retry oven.
No
Yes
1
2
3

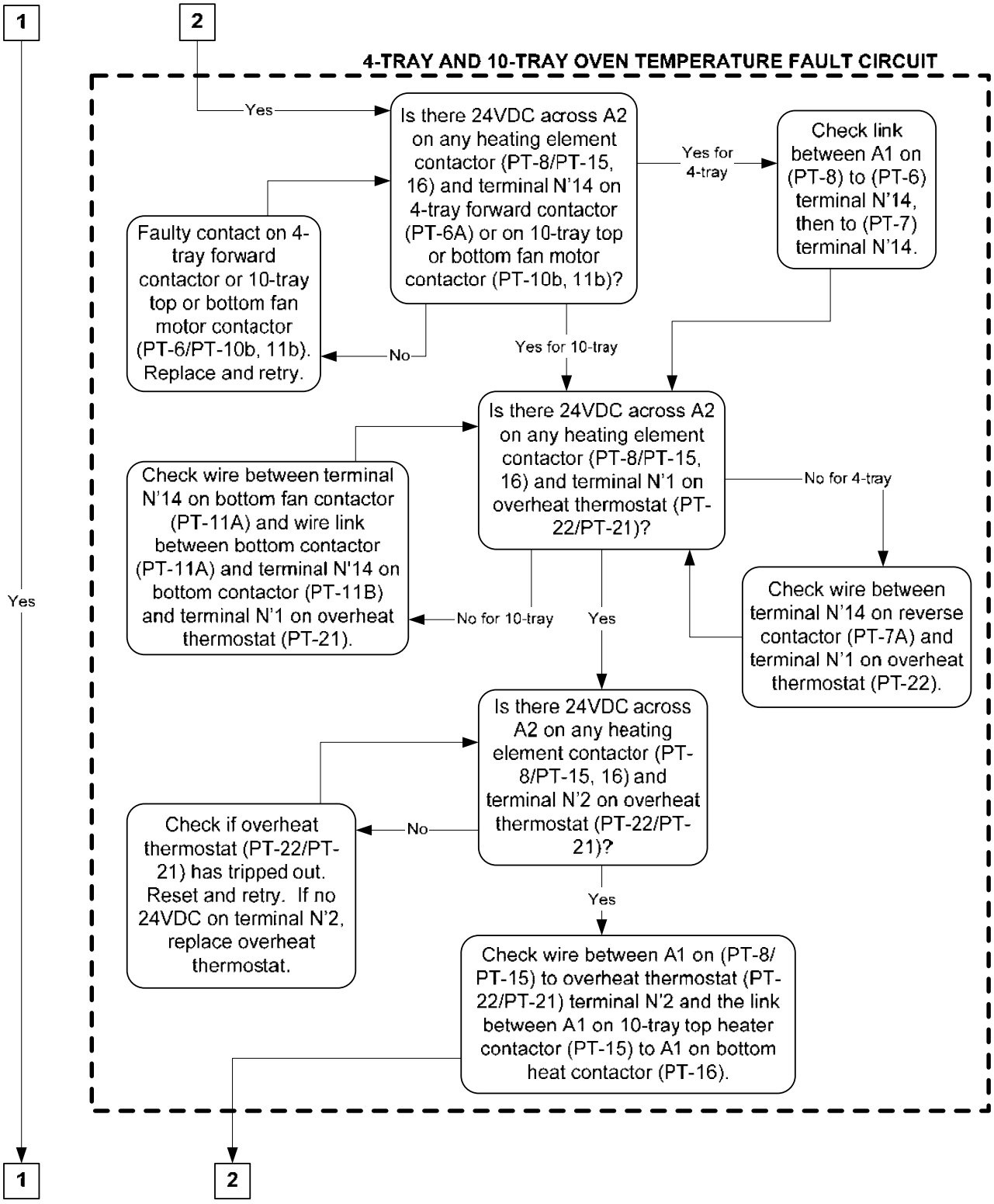
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
3
10-TRAY OVEN TEMPERATURE FAULT CIRCUIT
Yes
Is there 24VDC across A2 on any heating element contactor (PT-15, 16) or terminal N'43 on (PT-4B, 5B) auxiliary contact on top or bottom fan motor overload (PT-4A, 5-A) when calling for heat?
No
Check wire between J1-2 on main P.C.B. (PT-24) and terminal N'43 on (PT-4B), and check wire between terminal N'44 on (PT-4B) on tap fan motor overload auxiliary contact and terminal N'43 on (PT-5B) on bottom fan motor auxiliary contact block.
Yes
Check that auxiliary contact (PT-4B, 5B) on top and bottom fan overload (PT-4A, 5A) across terminals N'43 & N'44 is closed (0 ohms) when overload is reset.
No
Is there 24VDC across A2 on any heating element contactor (PT-15, 16) and terminal N'44 on (PT-4B, 5B) auxiliary contact on top or bottom fan motor overload (PT-4A, 5A) when calling for heat?
Yes for 4-tray clockwise direction
Yes
Yes
4-TRAY AND 10-TRAY OVEN TEMPERATURE FAULT CIRCUIT
Check wire between (PT-5B)-44 and (PT-6A)-13 on 4-tray oven, between (PT-10a)-13 and (PT-10b) terminal N'13 on 10-tray oven, and between the top fan contactor (PT-10b) terminal N'14 and bottom fan contactor (PT-11b) terminal N'13 on 10-tray oven.
No
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal N'13 on 4-tray forward contactor (PT-5A) or on 10-tray top or bottom fan motor contactor (PT-10b, 11b)?
Yes
1
2

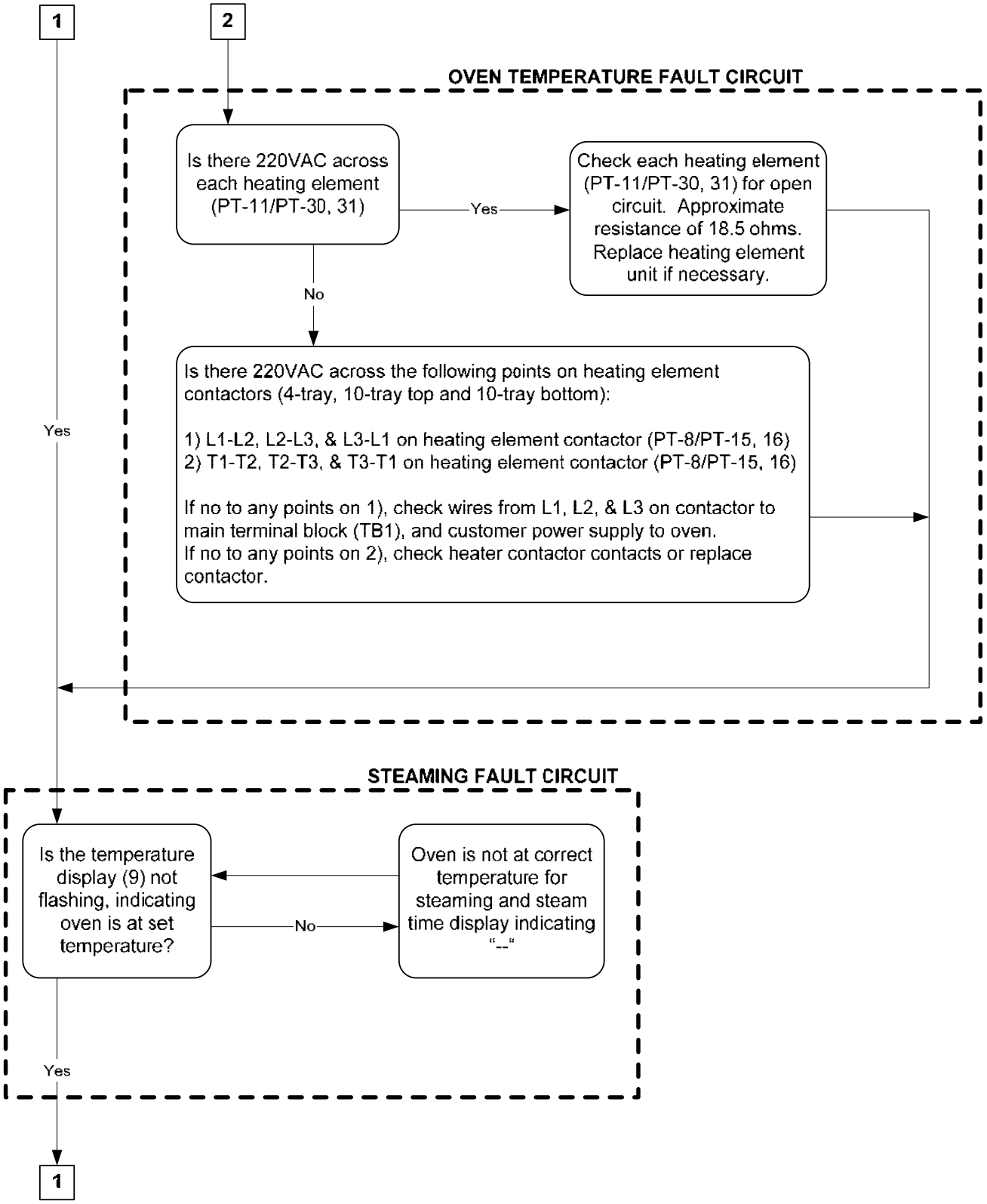
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
4-TRAY AND 10-TRAY OVEN TEMPERATURE FAULT CIRCUIT
Yes
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal N'14 on 4-tray forward contactor (PT-6A) or on 10-tray top or bottom fan motor contactor (PT-10b, 11b)?
Yes for 4-tray
Check link between A1 on (PT-8) to (PT-6) terminal N'14, then to (PT-7) terminal N'14.
Faulty contact on 4-tray forward contactor or 10-tray top or bottom fan motor contactor (PT-6/PT-10b, 11b). Replace and retry.
No
Yes for 10-tray
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal N'1 on overheat thermostat (PT-22/PT-21)?
No for 4-tray
Check wire between terminal N'14 on bottom fan contactor (PT-11A) and wire link between bottom contactor (PT-11A) and terminal N'14 on bottom contactor (PT-11B) and terminal N'1 on overheat thermostat (PT-21).
No for 10-tray
Yes
Check wire between terminal N'14 on reverse contactor (PT-7A) and terminal N'1 on overheat thermostat (PT-22).
Yes
Is there 24VDC across A2 on any heating element contactor (PT-8/PT-15, 16) and terminal N'2 on overheat thermostat (PT-22/PT-21)?
Check if overheat thermostat (PT-22/PT-21) has tripped out. Reset and retry. If no 24VDC on terminal N'2, replace overheat thermostat.
No
Yes
Check wire between A1 on (PT-8/PT-15) to overheat thermostat (PT-22/PT-21) terminal N'2 and the link between A1 on 10-tray top heater contactor (PT-15) to A1 on bottom heat contactor (PT-16).
1
2

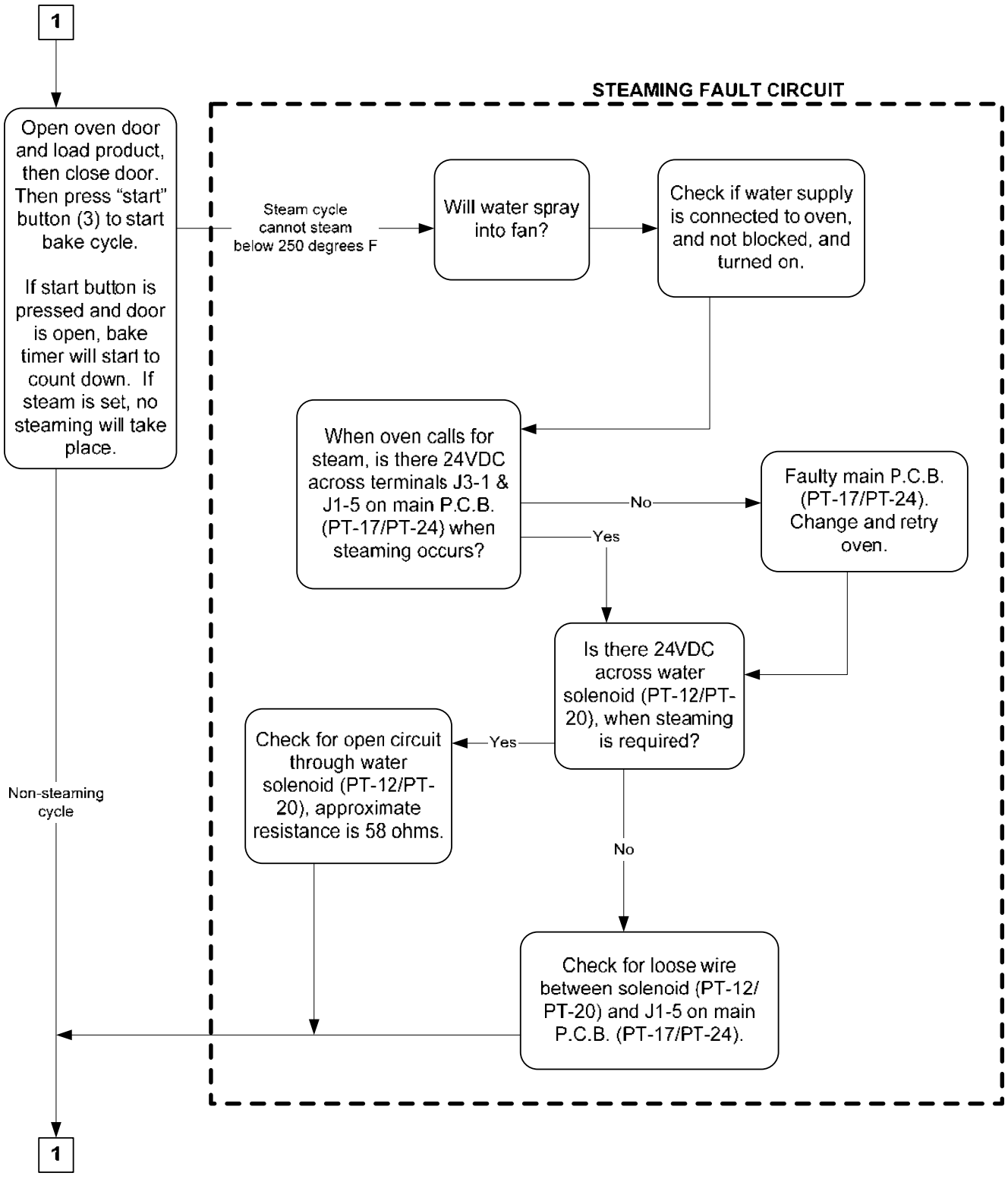
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
2
OVEN TEMPERATURE FAULT CIRCUIT
Is there 220VAC across each heating element (PT-11/PT-30, 31)
Yes
Check each heating element (PT-11/PT-30, 31) for open circuit. Approximate resistance of 18.5 ohms. Replace heating element unit if necessary.
No
Is there 220VAC across the following points on heating element contactors (4-tray, 10-tray top and 10-tray bottom):
1) L1-L2, L2-L3, & L3-L1 on heating element contactor (PT-8/PT-15, 16)
2) T1-T2, T2-T3, & T3-T1 on heating element contactor (PT-8/PT-15, 16)
If no to any points on 1), check wires from L1, L2, & L3 on contactor to main terminal block (TB1), and customer power supply to oven.
If no to any points on 2), check heater contactor contacts or replace contactor.
Yes
STEAMING FAULT CIRCUIT
Is the temperature display (9) not flashing, indicating oven is at set temperature?
No
Oven is not at correct temperature for steaming and steam time display indicating "--"
Yes
1

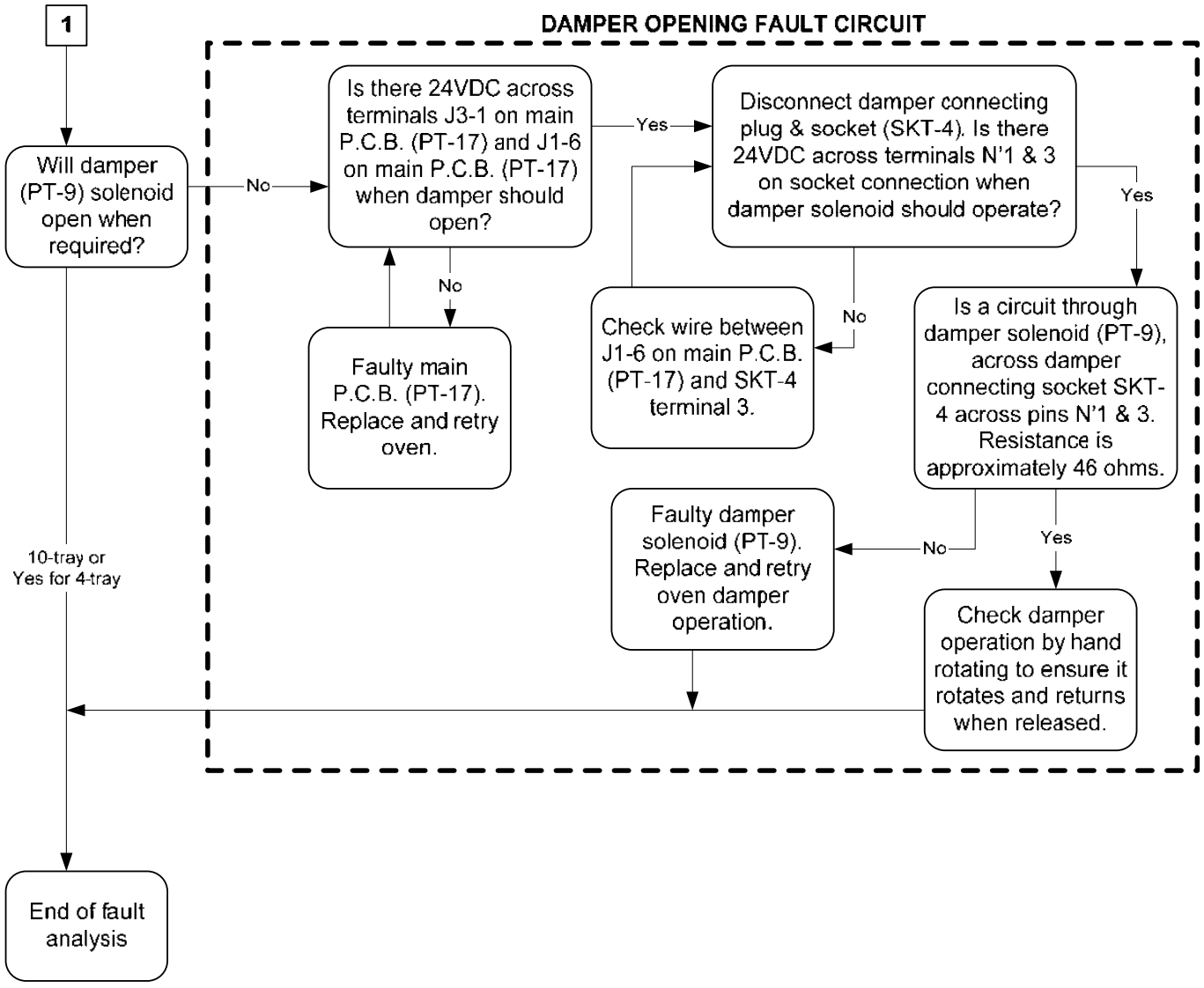
*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
STEAMING FAULT CIRCUIT
Open oven door and load product, then close door. Then press "start" button (3) to start bake cycle.
If start button is pressed and door is open, bake timer will start to count down. If steam is set, no steaming will take place.
Steam cycle cannot steam below 250 degrees F
Will water spray into fan?
Check if water supply is connected to oven, and not blocked, and turned on.
When oven calls for steam, is there 24VDC across terminals J3-1 & J1-5 on main P.C.B. (PT-17/PT-24) when steaming occurs?
No
Faulty main P.C.B. (PT-17/PT-24). Change and retry oven.
Yes
Is there 24VDC across water solenoid (PT-12/PT-20), when steaming is required?
Yes
Check for open circuit through water solenoid (PT-12/PT-20), approximate resistance is 58 ohms.
No
Check for loose wire between solenoid (PT-12/PT-20) and J1-5 on main P.C.B. (PT-17/PT-24).
Non-steaming cycle
1

*Note: Part (PT) numbers are indicated in parentheses; 4-tray oven PT numbers are listed first, then 10-tray oven PT numbers.

4 TRAY & 10 TRAY CLASSIC LED FAULT ANALYSIS CHART


1
DAMPER OPENING FAULT CIRCUIT
Will damper (PT-9) solenoid open when required?
No
Is there 24VDC across terminals J3-1 on main P.C.B. (PT-17) and J1-6 on main P.C.B. (PT-17) when damper should open?
Yes
Disconnect damper connecting plug & socket (SKT-4). Is there 24VDC across terminals N'1 & 3 on socket connection when damper solenoid should operate?
Yes
No
Faulty main P.C.B. (PT-17). Replace and retry oven.
No
Check wire between J1-6 on main P.C.B. (PT-17) and SKT-4 terminal 3.
Is a circuit through damper solenoid (PT-9), across damper connecting socket SKT-4 across pins N'1 & 3. Resistance is approximately 46 ohms.
No
Faulty damper solenoid (PT-9). Replace and retry oven damper operation.
Yes
Check damper operation by hand rotating to ensure it rotates and returns when released.
10-tray or Yes for 4-tray
End of fault analysis

Diagrams 5

This section contains diagrams detailing the electrical components of the 4-tray and 10-tray Classic convection ovens.

- Stacking Kit Arrangement, 5-1

4-tray Classic BX Oven (starts on page 33)

- Electrical Components, M189E25-00200
- Main PCB Connections, M158E25-50800
- PCB Inputs, M158E25-50500
- PCB Outputs, M189E25-00300
- Power Circuit Diagram, M189E25-00100
- Control Circuit & 24V DC Power Supply, M189E25-00400
- Fan Motor Connections & Heating Element Wiring, M189E25-00500

10-tray Classic BX Oven (starts on page 40)

- Electrical Components, M150E25-06000
- Main Control Panel Layout, M150E25-20200
- Main PCB Connections, M150E25-06300
- PCB Inputs, M150E25-06200
- PCB Outputs, M150E25-06100
- Interior Light & Power Supply Circuit, M150E25-20500
- Motor Power Circuit Diagram, M150E25-20600
- Heating Power Circuit Diagram, M150E25-20700
- Fan Motor Connections & Heating Element Wiring, M150E25-20300

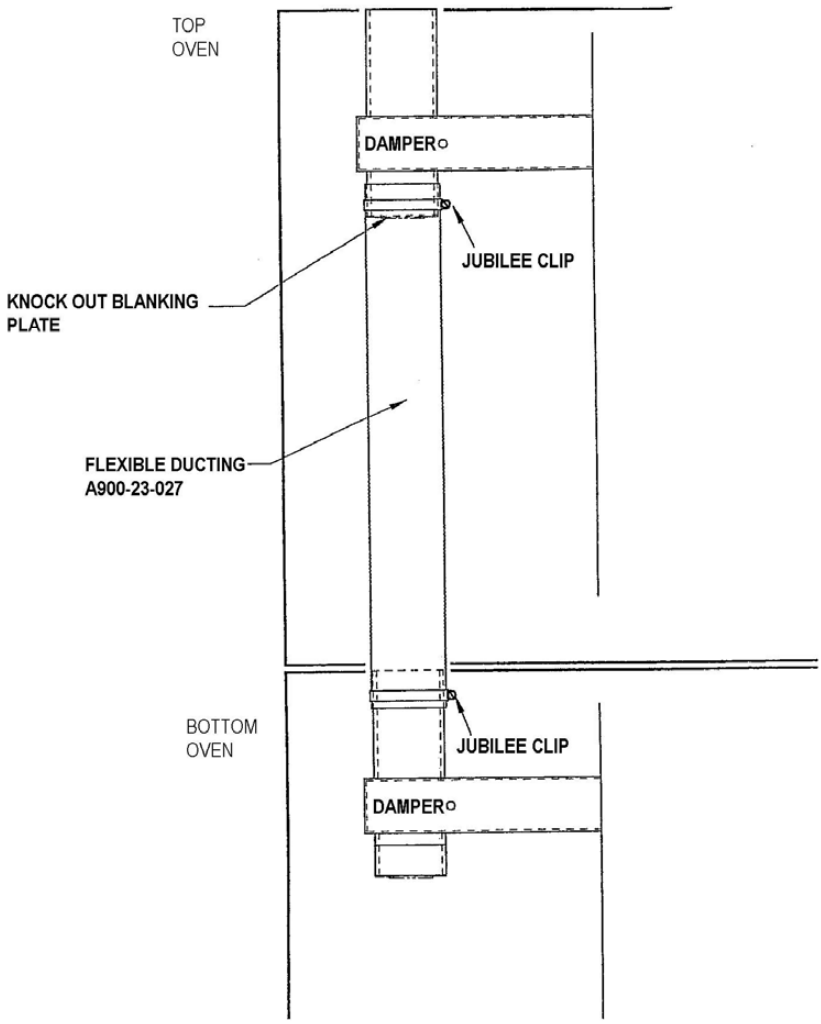
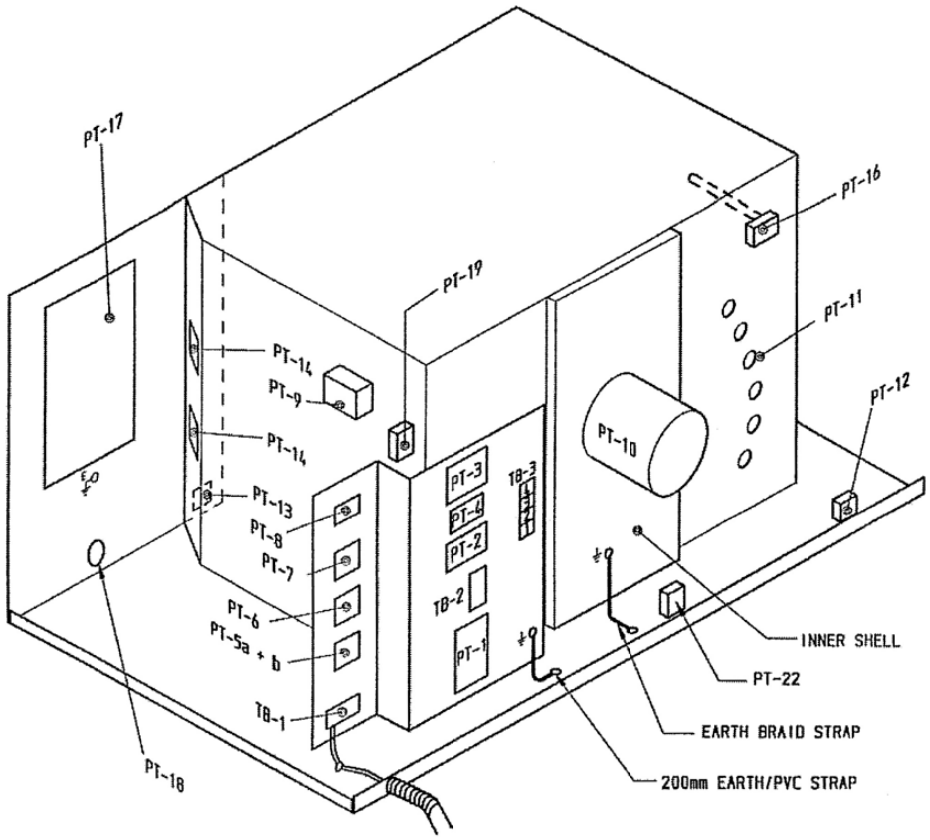


Figure 5-1. Stacking Kit Arrangement for BX Ovens

Notes for Figure 5-1:

1. Position ovens in stacked arrangement locating the base projections of the top oven in the dimples in the top of the lower oven.
2. Remove the rear covers of the ovens. Knock out the Blanking Plate in the damper tube of the upper oven (fixed with silicone sealant)
3. Recover the knocked out Blanking Plate from the pre-installed flexible duct and discard safely.
4. Fit the end of the flexible ducting over the top damper tube of the lower oven and clamp with the jubilee (worm drive) clip.
5. Replace the rear covers of the ovens.



DRAWING PT-Ref	DESCRIPTION	MONO PART NUMBER
PT-1	24V DC POWER SUPPLY UNIT	B705-93-006
PT-2a	INTERIOR LIGHT RELAY	B723-37-004
PT-2b	INTERIOR LIGHT RELAY BASE	B723-36-001
PT-3	CONTROL CIRCUIT M.C.B.	B851-22-011
PT-4	INTERIOR LIGHT M.C.B.	B851-22-011
PT-5a	FAN MOTOR OVERLOAD UNIT	B859-03-005
PT-5b	FAN MOTOR OVERLOAD AUXILIARY CONTACT	B859-14-014
PT-6	FAN MOTOR FORWARD CONTACTOR	B859-08-046
PT-7	FAN MOTOR REVERSE CONTACTOR	B859-08-046
PT-8	HEATING ELEMENT CONTACTOR	B859-08-045
PT-9	DAMPER SOLENOID (L/H)	B749-83-001
	DAMPER SOLENOID (R/H)	B749-83-002
PT-10	FAN MOTOR UNIT	B720-74-001
PT-11	HEATING ELEMENT	B847-04-070
PT-12	WATER SOLENOID	B994-83-003
PT-13	DOOR SWITCH	B801-11-001
PT-14	INTERIOR LIGHT UNIT	B721-67-001
PT-16	THERMOCOUPLE	B873-95-001
PT-17	MAIN P.C.B.	B705-97-013
PT-18a	MAIN ON/OFF SWITCH	B767-07-001
PT-18b	BULB 110V	B767-94-001
PT-19	REAR FAN UNIT	B869-75-025
PT-22	OVERHEAT THERMOSTAT	B873-30-015

MECHANICAL SPARES	
DOOR HANDLE	A900-27-118
OVEN SEAL	159-03-00500
STEAM NOZZLE	A900-34-172
LEFT HAND RACK ASSEMBLY	189-01-01001
RIGHT HAND RACK ASSEMBLY	189-01-01000

REV	SIG	DATE	REVISION	ECN NO.

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Fax: 206-322-5425
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TITLE: ELECTRICAL COMPONENTS LAYOUT
26 X 18 'CLASSIC' 4 TRAY OVEN
UL APPROVED

DRAWN:	ELECTRICALLY APPROVED BY:-
JC	P.BOYLES
DATE:	DRAWING NO. / REV:
30-4-02	M189E25-00200 / —

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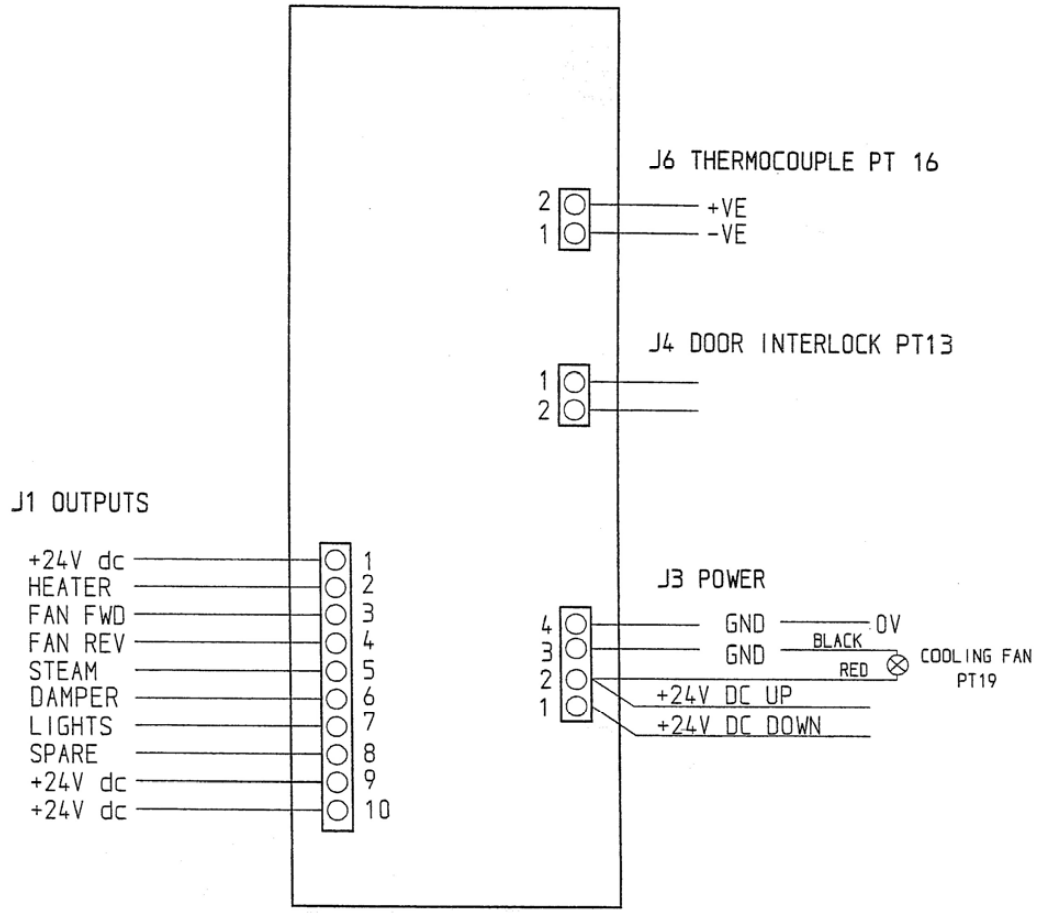
CONTROLLER BOARD AS VIEWED FROM COMPONENT SIDE

MONO 'CLASSIC' OVEN CONTROLLER



REV	SIG	DATE	REVISION	ECN NO.
A	JC	22-2-01	RE-ARRANGE POWER CIRCUIT WIRES TO PCB	14/19

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ELECTRICAL SPECIFICATIONS:-

TITLE:		
MAIN P.C.B. CONNECTIONS 4 TRAY CLASSIC OVEN		
DRAWN:	ELECTRICALLY APPROVED BY:-	
MT	P.BOYLES	
DATE:	DRAWING NO.	REV:
1-12-98	M158E25-50800	A

PT-17
J6
1 2
PT-16
OVEN
THERMOCOUPLE
PT-17
J4
1 2
SKT 2
1 2 3
GREEN/YELLOW
BLUE
BROWN
PT13
DOOR
SWITCH
PT-17
J3
1 2 3 4
BLACK
PT-19
RED
24v DC FROM PSU
REV
SIG
DATE
REVISION
ECN NO
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E-mail: service@belshaw.com
TITLE:
P.C.B. INPUTS
4 TRAY CLASSIC OVEN
ELECTRICAL SPECIFICATIONS:-
DRAWN:
MT
ELECTRICALLY APPROVED BY:-
P.BOYLES
DATE:
26-11-98
DRAWING NO.
M158E25-50500
REV:
-
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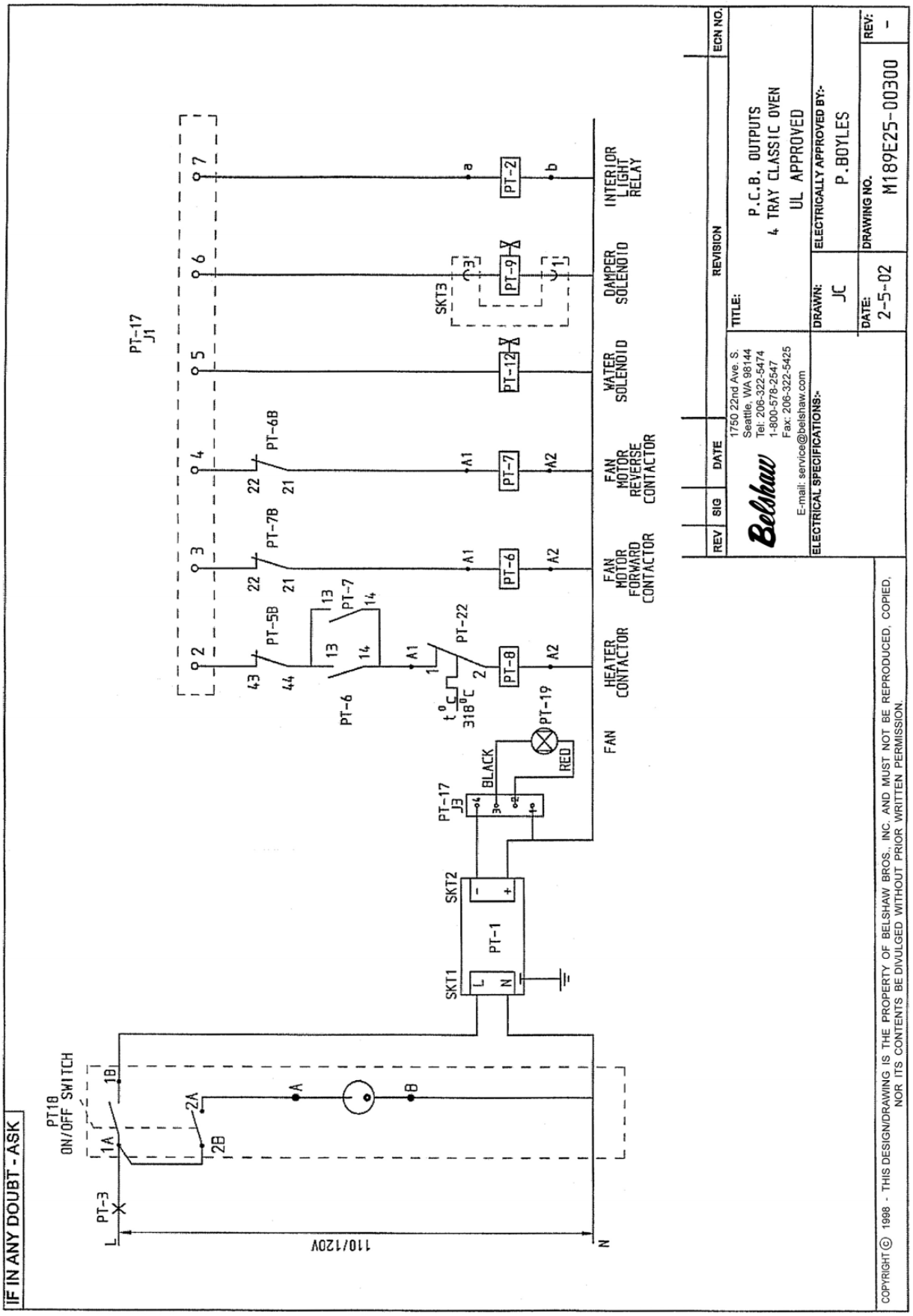
IF IN ANY DOUBT - ASK
PT1B
ON/OFF SWITCH
PT-3
1A
1B
2A
2B
A
B
L
N
110/120V
SKT1
SKT2
PT-1
PT-17
J3
BLACK
RED
PT-19
FAN
HEATER
CONTACTOR
PT-22
PT-6
PT-5B
PT-7
PT-7B
PT-6B
FAN
MOTOR
FORWARD
CONTACTOR
FAN
MOTOR
REVERSE
CONTACTOR
WATER
SOLENOID
DAMPER
SOLENOID
INTERIOR
LIGHT
RELAY
PT-17
J1
SKT3
PT-2
PT-6
PT-7
PT-8
PT-9
PT-12
REVISION
REV
SIG
DATE
ECN NO.
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E-mail: service@belshaw.com
TITLE:
P.C.B. OUTPUTS
4 TRAY CLASSIC OVEN
UL APPROVED
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
DATE:
2-5-02
ELECTRICALLY APPROVED BY:-
P.BOYLES
DRAWING NO.
M189E25-00300
REV:
-
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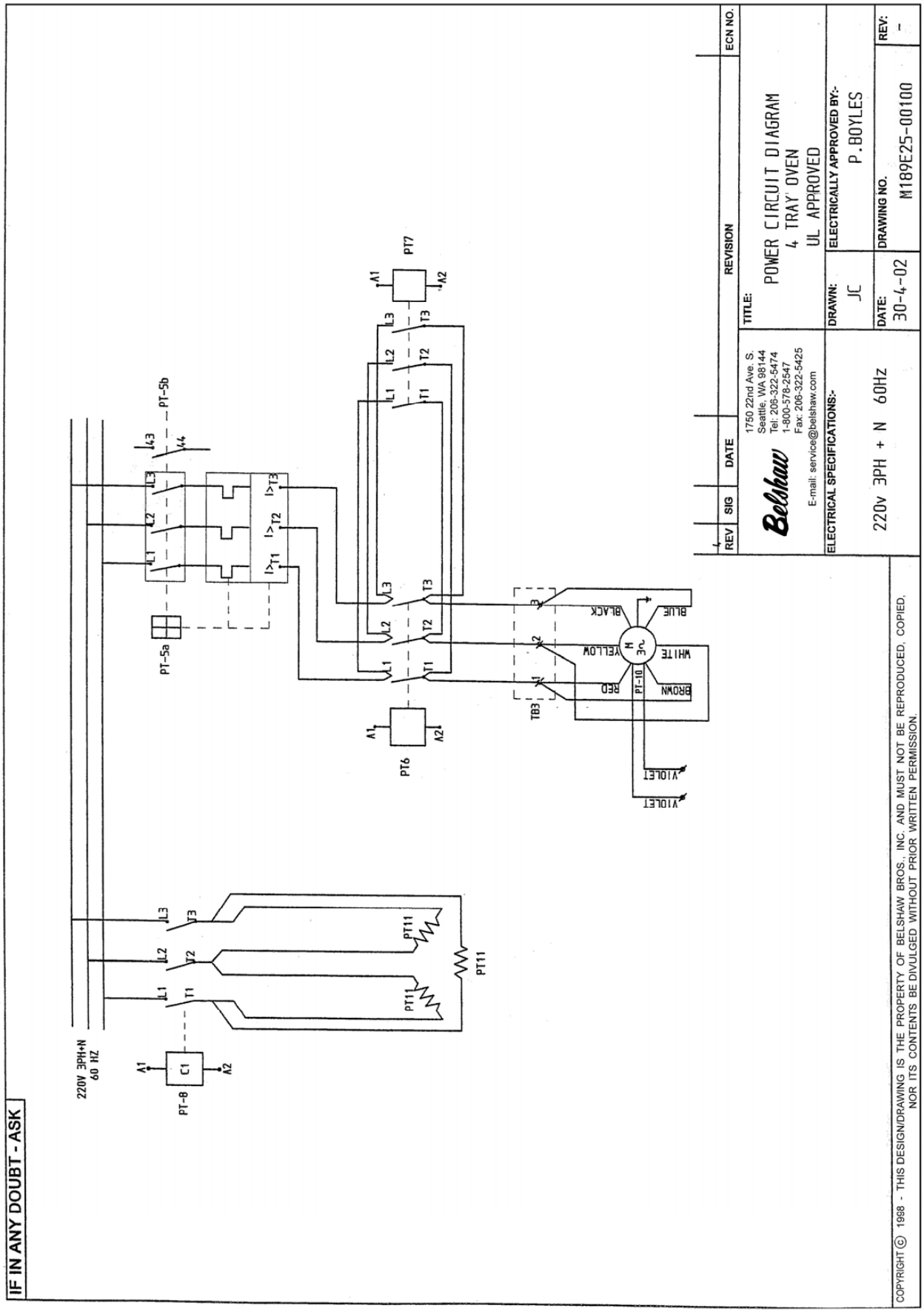
IF IN ANY DOUBT - ASK
220V 3PH+N 60 HZ
PT-8
PT-5a
PT-5b
PT6
PT7
PT11
TB3
PT-10
BLACK
BLUE
YELLOW
WHITE
BROWN
RED
VIOLET
REV
SIG
DATE
REVISION
ECN NO.
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TITLE:
POWER CIRCUIT DIAGRAM
4 TRAY OVEN
UL APPROVED
ELECTRICAL SPECIFICATIONS:-
220v 3PH + N 60Hz
DRAWN:
JC
ELECTRICALLY APPROVED BY:-
P.BOYLES
DATE:
30-4-02
DRAWING NO.
M189E25-00100
REV:
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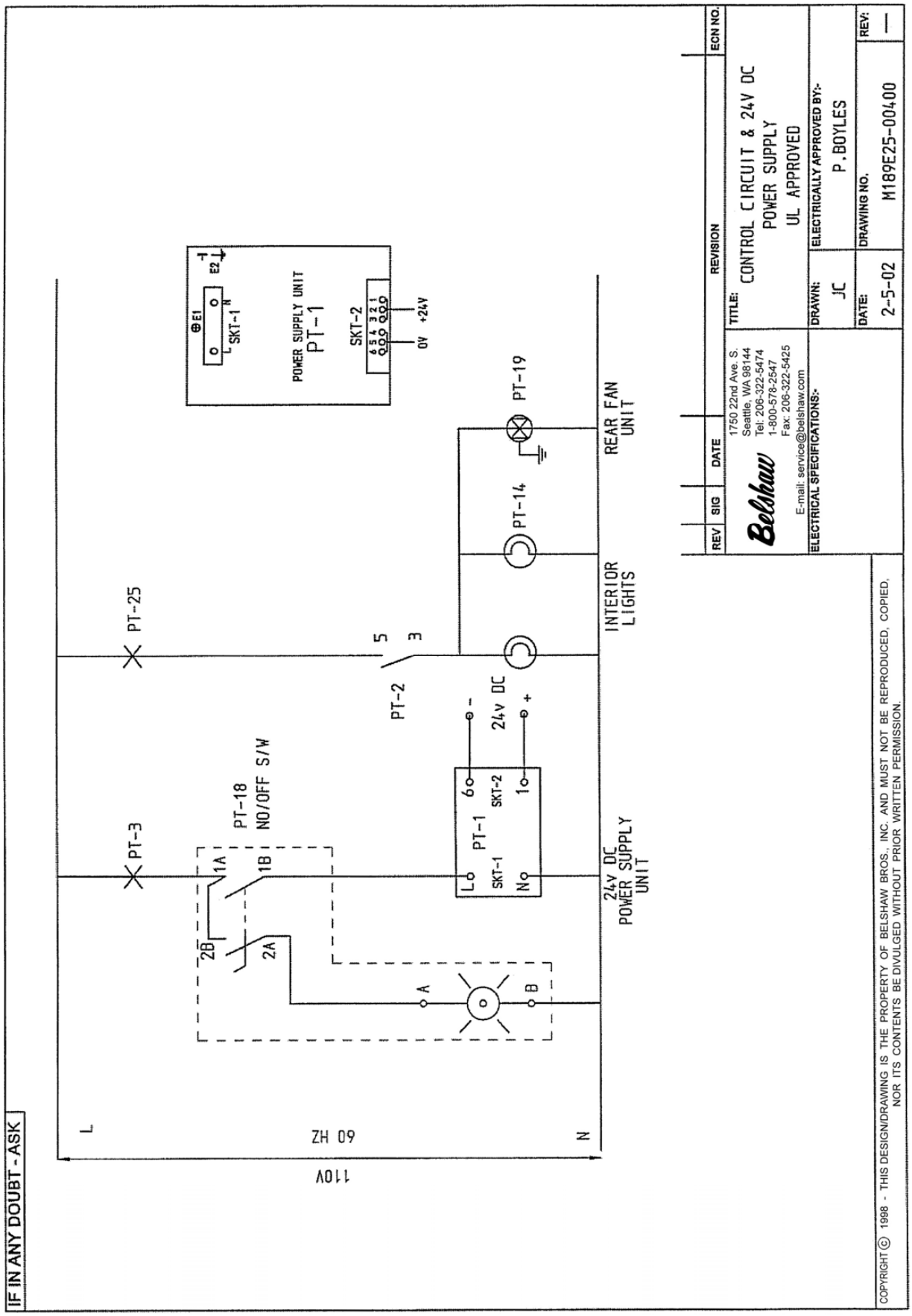
IF IN ANY DOUBT - ASK
L
N
110V
60 HZ
PT-25
PT-3
PT-18
NO/OFF S/W
1A
1B
2B
2A
A
B
PT-2
5
3
PT-1
SKT-1
SKT-2
6
1
L
N
24v DC
24v DC
POWER SUPPLY
UNIT
INTERIOR
LIGHTS
PT-14
PT-19
REAR FAN
UNIT
POWER SUPPLY UNIT
PT-1
SKT-1
E1
E2
SKT-2
0V
+24V
REVISION
REV
BIG
DATE
ECN NO.
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TITLE:
CONTROL CIRCUIT & 24V DC
POWER SUPPLY
UL APPROVED
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
DATE:
2-5-02
ELECTRICALLY APPROVED BY:-
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M189E25-00400
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HEATING ELEMENT WIRING
PT11
L1 1.5 mm² PTEMP
L1 1.5 mm² PTEMP
L2 1.5 mm² PTEMP
L3 1.5 mm² PTEMP
L3 1.5 mm² PTEMP
L2 1.5 mm² PTEMP
FAN MOTOR CONNECTIONS
GREEN/YELLOW (1.5mm²)
4
3
2
1
BLUE
BLACK
YELLOW
WHITE
BROWN
RED
VIOLET
VIOLET
REV
SIG
DATE
REVISION
ECN NO.
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TITLE:
FAN MOTOR CONNECTIONS
& HEATING ELEMENT WIRING
UL APPROVED
ELECTRICAL SPECIFICATIONS:-
220V 3PH+N 60Hz
DRAWN:
JC
ELECTRICALLY APPROVED BY:-
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DATE:
2-5-02
DRAWING NO.
M189E25-00500
REV:
-
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IF IN ANY DOUBT - ASK
DRAWING PT-Ref
DESCRIPTION
MONO PART NUMBER
PT-1 INTERIOR LIGHT M.C.B. B851-22-011
PT-2 CONTROL CIRCUIT M.C.B. B851-22-011
PT-4a FAN MOTOR OVERLOAD UNIT N'1 (TOP) B859-03-005
PT-4b FAN MOTOR OVERLOAD N'1 AUXILIARY CONTACT B859-14-011
PT-5a FAN MOTOR OVERLOAD UNIT N'2 (BOTTOM) B859-03-005
PT-5b FAN MOTOR OVERLOAD N'2 AUXILIARY CONTACT B859-14-014
PT-8a INTERIOR LIGHT RELAY B723-37-004
PT-8b INTERIOR LIGHT RELAY BASE B723-36-001
PT-10a FAN MOTOR CONTACTOR N'1-FORWARD (TOP MOTOR) B859-08-046
PT-10b FAN MOTOR CONTACTOR N'1-REVERSE (TOP MOTOR) B859-08-046
PT-10c FAN MOTOR N'1-ELECT/MECH INTERLOCK B859-18-004
PT-11a FAN MOTOR CONTACTOR N'2-FORWARD (BTM MOTOR) B859-08-046
PT-11b FAN MOTOR CONTACTOR N'2-REVERSE (BTM MOTOR) B859-08-046
PT-11c FAN MOTOR N'2-ELECT/MECH INTERLOCK B859-18-004
PT-14 24V DC POWER SUPPLY UNIT B705-93-006
PT-15 TOP HEATING ELEMENT CONTACTOR B801-08-023
PT-16 BOTTOM HEATING ELEMENT CONTACTOR B801-08-023
PT-17 DAMPER SOLENOID (L/H) B749-83-001
DAMPER SOLENOID (R/H) B749-83-002
PT-18 FAN MOTOR UNIT N'1 (TOP MOTOR) B720-74-001
PT-19 FAN MOTOR UNIT N'1 (BOTTOM MOTOR) B720-74-001
PT-20 WATER SOLENOID B994-83-003
PT-21 OVERHEAT THERMOSTAT N'1 B873-30-014
PT-23 OVEN THERMOCOUPLE B873-95-001
PT-24a MAIN DISPLAY PCB B705-97-018
PT-24b
PT-25 COOLING FAN B842-75-002
PT-26a MAIN OFF/ON SWITCH B836-07-003
PT-26b 110v BULB B767-94-001
PT-27 DOOR SWITCH B827-11-001
PT-28 INTERIOR LIGHT UNIT B721-67-001
PT-30 HEATING ELEMENT UNIT N'1 (TOP) B847-04-076
PT-31 HEATING ELEMENT UNIT N'2 (BOTTOM) B847-04-076
PT-34 REAR FAN UNIT B869-75-025
PT 23
PT 30
PT 18
PT 19
PT 20
PT 17
PT 28
PT 27
PT 34
PT 21
PT 31
PT 21
PT 26
PT 24a
PT 24b
REV
SIG
DATE
REVISION
ECN NO.
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E-mail: service@belshaw.com
TITLE:
ELECTRICAL COMPONENTS LAYOUT
CLASSIC 10 TRAY
(UL APPROVED)
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
DATE:
8/7/02
ELECTRICALLY APPROVED BY:-
P.BOYLES
DRAWING NO.
M150E25-06000
REV:
—
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IF IN ANY DOUBT - ASK
PT 29
PT16
PT15
PT14
TB2
PT8
PT10a
A
B
PT10c
PT10b
PT11a
A
B
PT11c
PT11b
TB1
PT5a
PT 5b
PT 4a
PT 4b
PT2
PT1
REV
SIG
DATE
REVISION
ECN NO.
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Seattle, WA 98144
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Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
MAIN CONTROL PANEL LAYOUT
10 TRAY OVEN
(UL APPROVED)
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
ELECTRICALLY APPROVED BY:-
P.BOYLES
DATE:
26/6/02
DRAWING NO.
M150E25-20200
REV:
-
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IF IN ANY DOUBT - ASK

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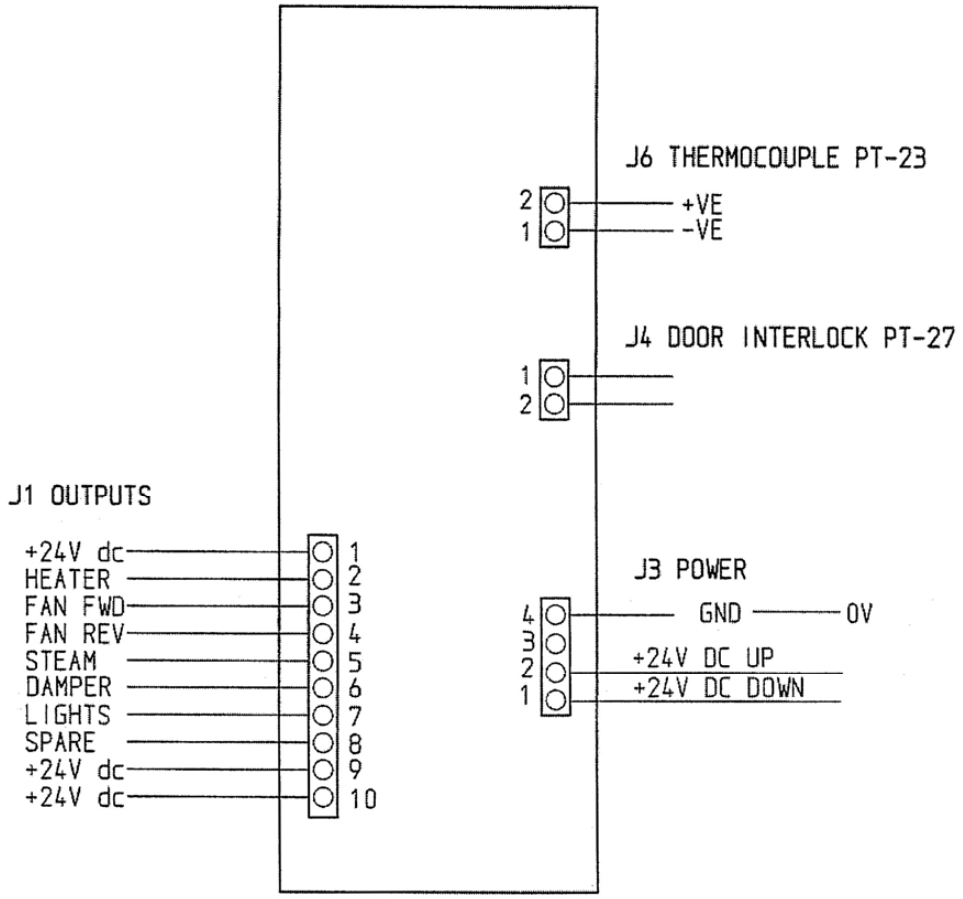
CONTROLLER BOARD AS VIEWED FROM COMPONENT SIDE

'CLASSIC' OVEN CONTROLLER



REV	SIG	DATE	REVISION	ECN NO.

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E-mail: service@belshaw.com

ELECTRICAL SPECIFICATIONS:-

TITLE:	
MAIN P.C.B. CONNECTIONS 10 TRAY CLASSIC OVEN	
DRAWN: JC	ELECTRICALLY APPROVED BY:- P.BOYLES
DATE: 27-9-02	DRAWING NO. M150E25-06300 — REV: —

IF IN ANY DOUBT - ASK
PT-24
J3
1 2 3 4
24v DC UP
24v DC DOWN
- +
+
PT-24
J4
1 2
1 3 2
SKT 2
PT-27
DOOR
SWITCH
BROWN
BLUE
GREEN/YELLOW
PT-24
J6
1 2
+
-
PT-23
OVEN
THERMOCOUPLE
REV
SIG
DATE
REVISION
ECN NO.
Belshaw
1750 22nd Ave. S.
Seattle, WA 98144
Tel: 206-322-5474
1-800-578-2547
Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
P.C.B. INPUTS
10 TRAY CLASSIC OVEN
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
ELECTRICALLY APPROVED BY:-
P.BOYLES
DATE:
26-9-02
DRAWING NO.
M150E25-06200
REV:
-
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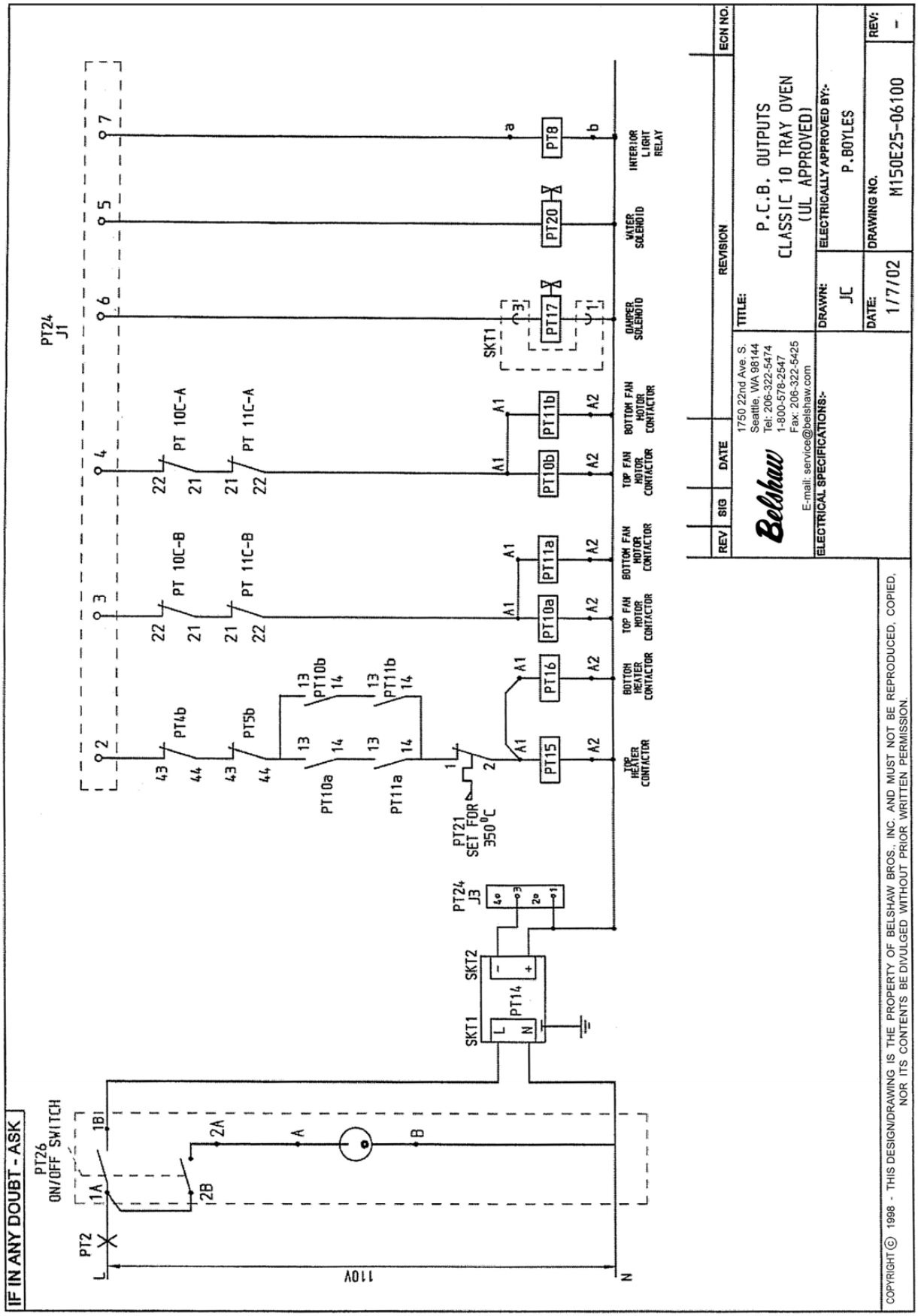
IF IN ANY DOUBT - ASK
PT26
ON/OFF SWITCH
PT2
1A
1B
2A
2B
A
B
110V
L
N
SKT1
L
N
PT14
SKT2
PT24
J3
PT21
SET FOR
350°C
PT4b
PT5b
PT10a
PT11a
PT10b
PT11b
PT15
PT16
PT10a
PT11a
PT10b
PT11b
PT17
PT20
PT8
PT24
J1
PT 10C-A
PT 11C-A
PT 10C-B
PT 11C-B
TOP HEATER CONTACTOR
BOTTOM HEATER CONTACTOR
TOP FAN MOTOR CONTACTOR
BOTTOM FAN MOTOR CONTACTOR
DAMPER SOLENOID
WATER SOLENOID
INTERIOR LIGHT RELAY
REV
SIG
DATE
REVISION
ECN NO.
Belshaw
1750 22nd Ave. S.
Seattle, WA 98144
Tel: 206-322-5474
1-800-578-2547
Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
P.C.B. OUTPUTS
CLASSIC 10 TRAY OVEN
(UL APPROVED)
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
DATE:
1/7/02
ELECTRICALLY APPROVED BY:-
P.BOYLES
DRAWING NO.
M150E25-06100
REV:
-
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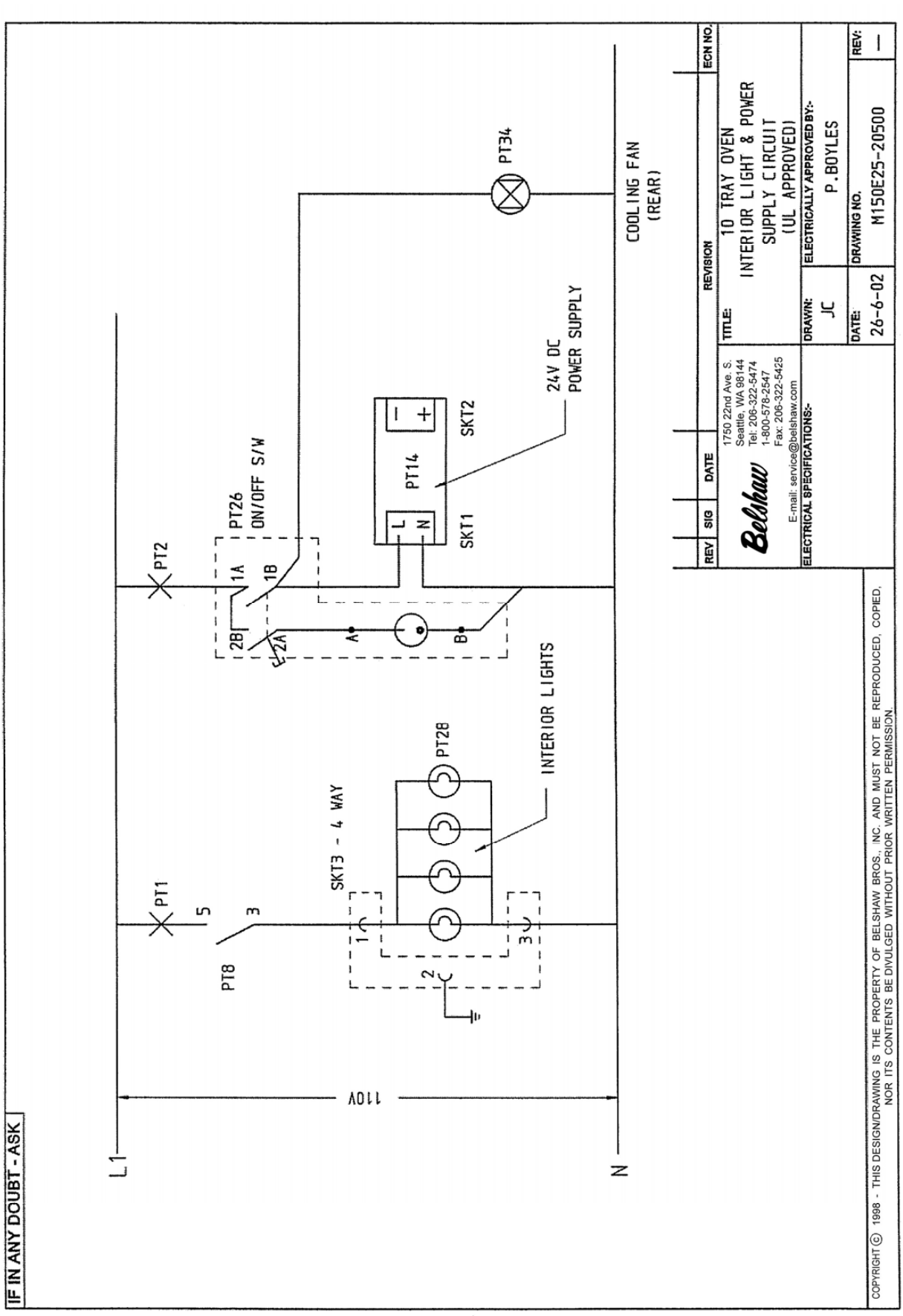
IF IN ANY DOUBT - ASK
L1
N
110V
PT1
5
3
PT8
SKT3 - 4 WAY
1
2
3
PT28
INTERIOR LIGHTS
PT2
PT26
ON/OFF S/W
1A
1B
2B
2A
A
B
L
N
PT14
SKT1
SKT2
24V DC
POWER SUPPLY
PT34
COOLING FAN
(REAR)
REV
SIG
DATE
REVISION
ECN NO.
Belshaw
1750 22nd Ave. S.
Seattle, WA 98144
Tel: 206-322-5474
1-800-578-2547
Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
10 TRAY OVEN
INTERIOR LIGHT & POWER
SUPPLY CIRCUIT
(UL APPROVED)
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
ELECTRICALLY APPROVED BY:-
P.BOYLES
DATE:
26-6-02
DRAWING NO.
M150E25-20500
REV:
—
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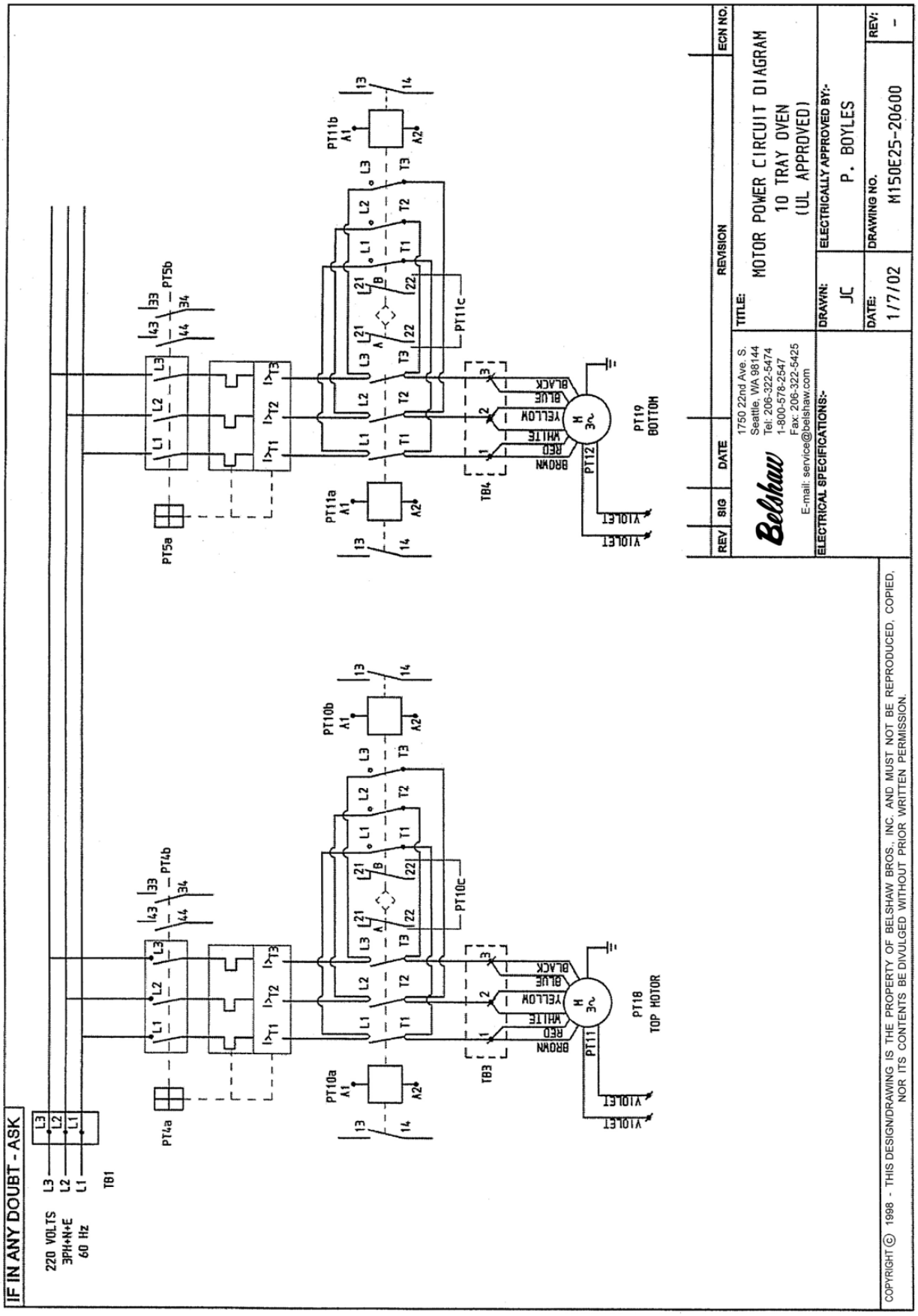
IF IN ANY DOUBT - ASK
220 VOLTS
3PH+N+E
60 Hz
L3
L2
L1
TB1
PT4a
PT4b
PT5a
PT5b
PT10a
PT10b
PT10c
PT11a
PT11b
PT11c
TB3
TB4
PT18
TOP MOTOR
PT19
BOTTOM
BROWN
RED
WHITE
YELLOW
BLUE
BLACK
VIOLET
REV
SIG
DATE
REVISION
ECN NO.
1750 22nd Ave. S.
Seattle, WA 98144
Tel: 206-322-5474
1-800-578-2547
Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
MOTOR POWER CIRCUIT DIAGRAM
10 TRAY OVEN
(UL APPROVED)
ELECTRICAL SPECIFICATIONS:-
DRAWN:
JC
DATE:
1/7/02
ELECTRICALLY APPROVED BY:-
P. BOYLES
DRAWING NO.
M150E25-20600
REV:
-
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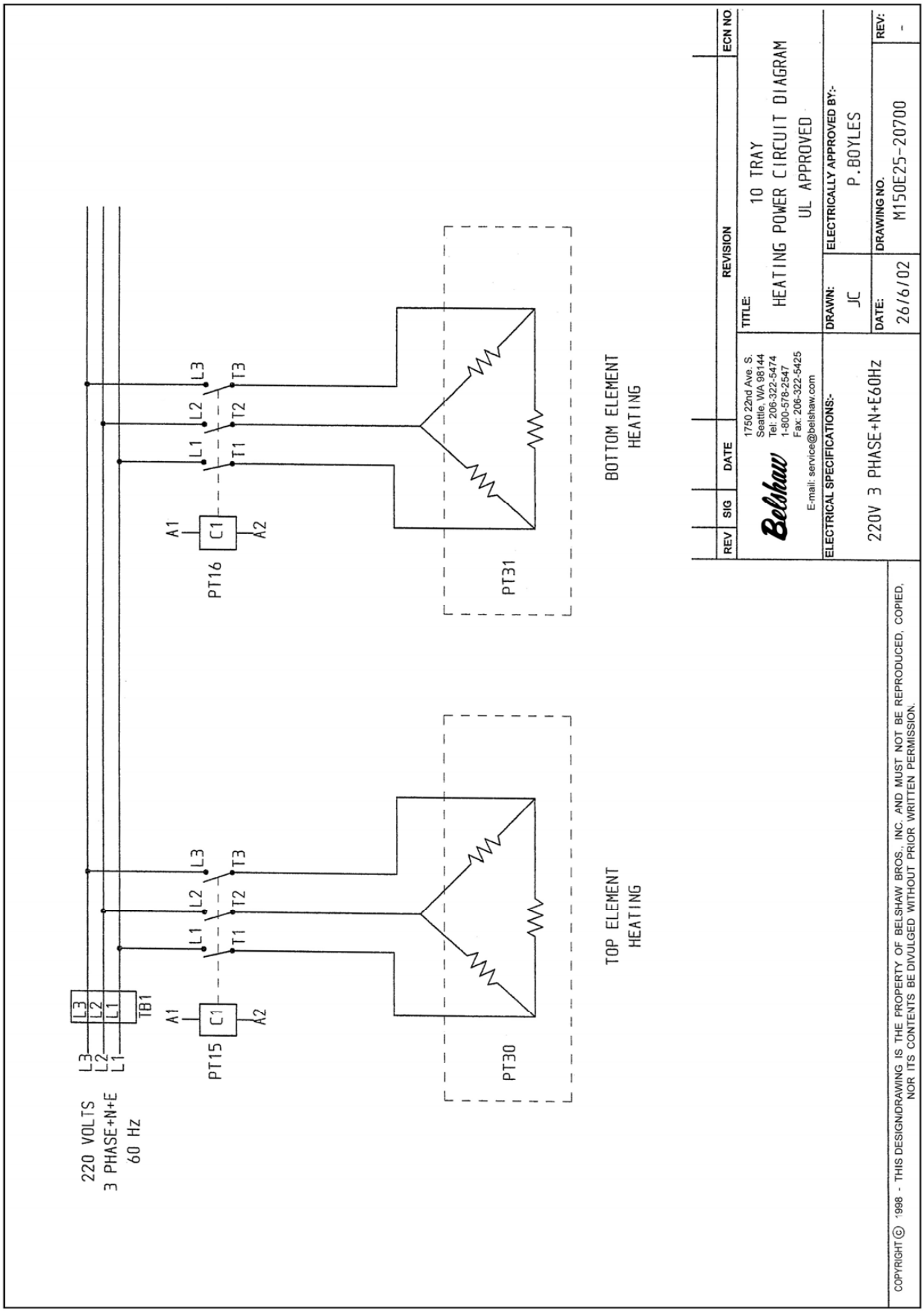
220 VOLTS
3 PHASE+N+E
60 Hz
L3
L2
L1
TB1
PT15
PT16
PT30
PT31
A1
C1
A2
T1
T2
T3
TOP ELEMENT
HEATING
BOTTOM ELEMENT
HEATING
REV
SIG
DATE
REVISION
ECN NO
Belshaw
1750 22nd Ave. S.
Seattle, WA 98144
Tel: 206-322-5474
1-800-578-2547
Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
10 TRAY
HEATING POWER CIRCUIT DIAGRAM
UL APPROVED
ELECTRICAL SPECIFICATIONS:-
220V 3 PHASE+N+E60Hz
DRAWN:
JC
ELECTRICALLY APPROVED BY:-
P.BOYLES
DATE:
26/6/02
DRAWING NO.
M150E25-20700
REV:
-
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HEATING ELEMENT WIRING
TOP ELEMENT PT30
BOTTOM ELEMENT PT 31
L1 1.5 mm² PTEMP
L1 1.5 mm² PTEMP
L2 1.5 mm² PTEMP
L3 1.5 mm² PTEMP
L3 1.5 mm² PTEMP
L2 1.5 mm² PTEMP
TOP MOTOR PT 18
CLOCKWISE DIRECTION WHEN
VIEWED FROM FRONT OF OVEN
GREEN/YELLOW (1.5mm²)
BLUE
BLACK
YELLOW
WHITE
BROWN
RED
VIOLET
VIOLET
BOTTOM MOTOR PT 19
ANTI-CLOCKWISE DIRECTION
WHEN VIEWED FROM FRONT OF OVEN
GREEN/YELLOW (1.5mm²)
BLUE
BLACK
RED
BROWN
WHITE
YELLOW
VIOLET
VIOLET
FAN MOTOR CONNECTIONS
REV
SIG
DATE
REVISION
ECN NO.
Belshaw
1750 22nd Ave. S.
Seattle, WA 98144
Tel: 206-322-5474
1-800-578-2547
Fax: 206-322-5425
E-mail: service@belshaw.com
TITLE:
10 TRAY FAN MOTOR CONNECTIONS
& HEATING ELEMENT WIRING
UL APPROVED
ELECTRICAL SPECIFICATIONS:-
220V 3PH+3+N 60Hz
DRAWN:
JC
DATE:
26/6/02
ELECTRICALLY APPROVED BY:-
P. BOYLES
DRAWING NO.
M150E25-20300
REV:
-
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